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PROBLEMS OF HINDUSTANI MUSIC

BY

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To
PANDITJI

PREFACE

The book is meant primarily for people who take some interest in the scientific study of music. Hindustani music has a large audience to-day owing to the introduction of gramophone and the development of broadcasting. There is a certain curiosity, a growing desire to know its basic principles and distinctive features. There also exists a keenly felt want for a standardised theory of Hindustani music and this short treatise attempts to state the problems that need solution before we hope to achieve this end.

Nearly a century intervenes between the publication of Capt. Willard's 'A Treatise on the Music of Hindoostan' in 1834 and Pandit Bhatkhande's 'Hindustani Saṅgit Paddhati (last vol.) in 1932. This has been a period of activity and researches into the subject. Problems have cropped up meanwhile which require re-planning and re-organization of material and it is time somebody took stock of the progress made for their proper appreciation.

The first chapter defines certain elements of

Hindustani music which seem to us to be essential to its understanding. Mutual relation among the elements is explained in order to make them intelligible parts of the musical structure. The problems are bound up with the elements and slowly take shape when examined in the light of explaining their significance. This method eliminates the inclusion of all unnecessary details and brings into broad relief aspects which often receive too little attention in musical criticism.

The second chapter summarises the historical material of earlier centuries and supplies just so much information as is necessary for understanding the problems. This has necessitated hunting up of suitable material from Sanskrit treatises. Much new matter has been utilized which has been based on careful reading of texts. A short descriptive account of Capt. Willard serves as a transition to modern times contributing scientific outlook and methodology to the treatment of music. A little additional material with advanced treatment occurs in discussions which have taken the form of independent essays and have been placed near the end in Appendices I-VI. A few originals of important Sanskrit verses will be found in App. IX. The subject will be taken up

PREFACE

in detail in my 'A Short History of Hindustani Music'.

In the discussions two writers from the nineteenth century find special mention, choice being made for writers of systematic treatises. Capt. N. A. Willard's work appeared in 1834. It was followed by Mr. Kshetramohan Goswami's *Saṅgīta-sāra* in 1868 and by Mr. Krishnadhan Banerjee's *Gīta-sūtra-sāra* in 1885 both written in Bengali. Twentieth century is represented by Pandit V. N. Bhatkhande's *Hindustani Saṅgit Paddhati* (4 vols.) and *Kramik Pustak Mālikā* (4 vols.) in Marathi published between 1910 and 1932. Names of a few well-known, and deservedly well-known, writers in contemporary musical criticism have been omitted as they do not materially differ from the above writers. Meaning no disrespect to them, I hesitate to anticipate the verdict of history. A few important articles by Mr. A. H. Fox Strangways, Rao Bahadur P. R. Bhandarkar and Mr. V. V. Phadke have, however, been noticed.

Criticism has not been merely negative and the object of the book is not to pile up shortcomings of existing theories, for every theory will be found wanting after the lapse of probably a decade. There

is here sufficient hint for reconstructing the entire basis of Hindustani music on more systematic and rational lines. The very way of arranging, defining and emphasizing things will not, I hope, fail to reveal this. As exhaustive treatment is beyond the scope of a book of this nature, it will be carried out in its completeness in three separate books i. e. 1. Folk-songs and Melody-types. 2. Rhythm and Music. 3. Words and the Melody. Some of my views have been expressed in articles published in the quarterlies—Sangeeta (English) of Lucknow, Parichaya (Bengali) of Calcutta and Visva-bharati (English) of Santinketan.

This short treatise has been prepared for the use of students of music, but will, it is hoped, prove to be a well-ordered presentation of facts for the reader interested in music. My personal and professional experience of a teacher and a musician has guided me in writing this book. Any help in the form of mentioning misstatements or misrepresentations existing in the book will be gratefully acknowledged.

CALCUTTA, 1937.

H. L. R.

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NOTATION

Prime notes are denoted thus ;—sa, re, ga, ma, pà, dha, ni.

Komala (flattened) and tivra (sharpened) notes are denoted in the following way :— .

Komala—re, ga, dha, ni, (by horizontal bars below the notes).

Tivra—[!]ma, (by a vertical line above the note).

Music is usually confined to three consecutive octaves in which the low and high octave have respectively dots above and below the notes, The medium octave have no signs.

(for other details see “notation” in chapter V).

TRANSLITERATION.

The vowels and consonants of the Sanskrit and Hindustani alphabets are represented thus :—

Vowels— a ā i ī u ū ṛ e ai o au

Consonants —	k	kh	g	gh	ṅ
	ch	chh	j	jh	ñ
	ṭ	ṭh	ḍ	ḍh	ṇ
	t	th	d	dh	n
	p	ph	b	bh	m
	y	r	l	v	ś
	ṣ	s	h	ḥ	

In spelling musical terms Sanskrit forms have been retained as far as possible. They are often slightly different from their Hindustani prototypes which usually omit the inherent *a* of the final consonant.

Chapter I.

Preliminaries.

It profits much to have some idea of the lie of the land before taking a journey. To introduce a subject without preparation will be a waste of time and labour. The book necessarily begins with an explanation of the common terms in general use and this will serve to make the subsequent parts readily comprehensible. As the subject develops many of these technical terms will take a fresh hue, some may require modification and a few will open up regions yet little explored. For our immediate use, the following terms selected with an eye to intelligibility, brevity and accuracy will suffice.

A rāga is a type of melody or tune in which the notes progress artistically. Each rāga contains a number of songs and is based on them.

The main feature of the rāga is the ālāpa or development of a musical phrase or phrases known as pakaḍ or theme. Ālāpa is never reduced to a definite form like a song but has to be improvised each time

it is sung. The pakad recurs frequently in the elaborate variations. Ālāpa may be sung with a song or may be used as an independent composition.

The notes of a rāga have certain ways of ascending and descending. The arrangement of the notes while going up the scale is known as the āroha or the ascent and that down the scale is known as the avaroha or the descent. The pakad plays the most prominent part in the āroha and avaroha.

Notes are felt to centre in a principal note called the ṣaḍja or the tonic or the key-note. Certain other notes receive emphasis and serve as auxiliary key-notes. These are named amśas or essential notes. (Two of them are often called the vādi and samvādi)

Hindustani music uses twelve svaras or notes in the octave. Seven of these are named ṣaḍja (shortened form sā), ṛṣabha (re or ri), gāndhāra (gā), madhyama (mā), pañchama (pā), dhaivata (dhā), niṣāda (ni). The other five are known as vikṛtas or modifications of śuddha notes. They are either tivra or komala variations (sharps or flats) of the śuddha notes and are approximately a semitone higher and lower than the śuddha notes. Thus as (C), re (D), ga (E), ma (F), pa (G), dha (A), ni (B), are śuddha notes and re komala (D Flat), ga komala (E Flat), ma tivra (F

Sharp), dha komala (A Flat), ni komala (B Flat) are vikṛta notes. According to convention the alternative names of vikṛtas i. e. sa tīvra for re komala etc. are not used. The śuddha scale is similar to the European scale of C major.

In addition to these twelve notes a few more may be used occasionally in particular rāgas and they are known as śrutis or quarter-tones (approx.).

Music is usually confined to three consecutive saptaks or octaves i. e. mandra saptak or low octave, madhya saptak or medium octave and tāra saptak or high octave (saptak literally means a series of seven notes but signifies the same as an octave).

A rāga generally chooses seven of the twelve notes for its ascent and descent. These constitute the ṭhātā or the mela or the scale of the rāga which is nothing but the notes arranged in order of pitch. In addition to the seven notes a few more may be used in the rāga as additional notes or accidentals. Sometimes a rāga uses six or five notes instead of seven and is then known as ṣaḍava or hexa-tonic and auḍava or penta-tonic, those having seven being named saṃpūrṇa or complete rāgas.

Rāgas are either grouped according to ṭhātas (or scales) or aṅgas (or common combinations of notes

in different rāgas). Rāgas belonging to different scales may have the same aṅga i. e. Bahār and Darbāri.

There are four principal styles of developing a rāga in compositions called Dhrupad, Kheyāl, Tappā, Thumri. The form of composition also differs according to styles.

It is a convention in India that a rāga should be sung at its stated time during day and night.

In music rhythm is the organisation of time for producing an impression of order and balance on the mind. Rhythm is of two kinds :— regular or strict rhythm and irregular or varying rhythm.

In regular rhythm, time is regarded as broken up into a series of mātrās or beats of equal duration. Mātrās are then arranged into groups by means of a stress at definite intervals and are called tālas or measures. Tāla is the smallest metrical element and the combination of two or more tālas or measures forms particular varieties like Tritāla, Chaūtāla, Eka-tāla etc.

In irregular rhythm there is no symmetrical grouping and the time-value of notes is free and elastic. This rhythm, though not well-defined, is

nevertheless very vivid in ālāpa or development. Songs use a mixture of regular and irregular rhythms.

The rate of speed of the rhythm is called *laya* or tempo. The pace may be *vilambita* or slow, *madhya* or medium, and *druta* or fast.

Sometimes instead of saying the numbers one two three etc. for beats, certain meaningless words like *tā*, *dhā*, *ke*, *te*, *re*, etc similar to sounds produced on the drum, are used and they constitute the *ṭhekā* or formula for the drum. *Ṭhekā* may be described as the nearest phonetic transcription of rhythm as it is played on the drum.

Words used in music tend to change their original literary forms. In classical music this change is very much in evidence. Meaningless words like *tā*, *nā*, *tom*, *tere*, *dāni* etc. are used in musical compositions called *tarānas*.

The particular notes and *rāgas* are associated with particular *rasas* or emotional enjoyments.

Instrumental music is the reproduction of vocal music on instruments subject to the modifications due to instrumental technique and production of sound on instruments. Vocal and instrumental music have the same theoretical basis.

Study of Hindustani music consists till now, mainly of the analysis of a rāga from the stand-point of melody, rhythm and words.

Very little has been done to trace the origin of a complex type like the Hindustani rāga and to describe its evolution from simpler forms. But certain statements have unconsciously crept in the writings of the authors which throw some light on the origin and development of Hindustani rāgas. They have been noticed.

Chapter II.

Background of Earlier Centuries.

A. THE HINDU PERIOD.

Earlier centuries may be conveniently divided into two periods :—1. The Hindu Period extending from the Vedic ages to the 11th Century A.D. and this may again be split up into the Vedic and Sanskrit Periods. 2. The Muhammadan Period lasting till the 18th Century.

Sanskrit writers never fail to mention the Sāma-veda of about 1000 B.C. as the original source of music. The Sāmaveda consists almost entirely of stanzas taken from the R̥gveda to be sung at the Soma sacrifice. Nāradi-śikṣā and Prātiśākhya state that seven notes are used in chanting the sāmā. They are named kruṣṭa, prathama, dvitiya, tritiya, chaturtha, mandra and atisvāra (atisvara ?) and the vedic scale is conceived as a descending scale, the reverse of our ascending scale. It also appears that a ṛk is

chanted in monotone, a gāṭha consists of two notes, a sāmā of three notes, and a svarāntara of four notes. We do not know the intervals between the notes, nor are we in a position to compare the Vedic scale with the scales which afterwards came into existence.

The Sanskrit period begins with the writing of Nāṭya-śāstra of Bharata at about 200 B.C. (Macdonell) and stretches to the 11th century A.D. Nāṭyaśāstra is a treatise on drama but deals also with music. It contains no clear reference to rāgas but we meet here jātis which are the precursor of rāgas. A jāti has ten characteristics. It begins from a note called graha and ends in another called nyāsa. Final notes of different movements of jātis are termed apanyāsa, samnyāsa and vinyāsa. Amśa is the note (or notes) which is frequently used. Certain notes receive bahutvam or emphasis and others may have alpatvam or less importance. The lower or upper ranges of a jāti are called mandra and tāra.

Regular and mechanical patterns of notes are called alaṅkāras or ornamental figures i. e., sa re sa, re ga re, ga ma ga, etc. Notes are said to possess sthāyī varṇa or staying character when they are sung at the same pitch, ārohi varṇa or ascending character,

avarohi varṇa or descending character and sañchāri varṇa or a mixture of the preceding varṇas.

Jātis use seven notes and sometimes add two extra notes called antara gāndhāra (between ga and ma) and kākali niṣāda (between ni and sa). There are three octaves and each octave is conceived as consisting of twenty-two śrutis or quarter-tones (approx.) and as such divided into 22 intervals. They are distributed among the notes in the following way.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
sa		re	ga					ma				pa			dha		ni				sa

The śrutis are related to the note following, thus ri is a three-śruti note, ga a two-śruti note etc. (This is slightly different from Śārṅgadeva's arrangement who placed ni on the first śruti. For details see App. I.)

Notes may be of four kinds with reference to śrutis. The vādi is the same as the amśa. Saṁvādi notes are situated at the 9th or 13th śruti from each other. Thus sa ma, sa pa, ri dha, ga ni are saṁvādis. Vivādi notes are placed at the 20th śruti from each other i. e., re ga, . dha ni. The remaining notes are known as anuvādis. In Saṅgita-ratnākara vādi, saṁvādi, vivādi and anuvādi are termed the king, the

minister, the enemy and the follower and thus gain additional significance.

The jātis belong to two principal grāmas or scales called śaḍja-grāma and madhyama-grāma and other auxiliary scales called mūrchanās. The mūrchanās form scales starting from each of the notes of the sā-grāma and mā-grāma in a receding order. Thus sa re ga ma pa dha ni, ni sa re ga ma pa dha, dha ni sa re ga ma pa and ma pa dha ni sā re ga, ga ma pa dha ni sā re, re ga ma pa dha ni sā are the three out of the seven possible mūrchanās of the sā and mā-grāma respectively. Śaḍja-grāma and madhyama-grāma are identical with their sā-mūrchanā and mā-mūrchanā respectively.

Bharata mentions eight rasas or emotional enjoyment namely the comic, erotic, pathetic, awful, heroic, dreadful, loathsome and marvellous emotional enjoyments. Rasas vary according to the prominent note used in the jāti. Jātis using ma and pa frequently cause the erotic and comic emotions; those having sa and ri often give rise to the heroic, awful and marvellous emotions; and those using dha often produce the loathsome and dreadful emotions. All succeeding writers virtually repeat this making certain alterations in the arrangement.

Brhaddeśi of Mataṅga (about 400 A.D.) for the first time stresses the popularity of local and provincial airs 'which are sung by women, children, cowherds and kings with pleasure and just as they choose in provinces.' On account of the strong emphasis on the pleasure-aspect of a rāga, it is not difficult to conclude that the jātis had grown rather stiff due to artificial restrictions. A rāga, however, has a close resemblance to a jāti for the former having the same ten features is said to be derived from the latter.

A melody-type which has (particular) notes and varṇa and which pleases people is called a rāga. Varṇa or the way of grouping the notes up and down the scale are specially mentioned in relation to rāgas ; for instance āroha is the process in which the notes sung ascend one by one (in regular order) or leaving intermediate notes.

Ṣaḍja has a controlling effect on the other notes for Mataṅga says "Ṣaḍja is the parent of six notes or it is brought into being by other six notes or it is produced by six organs (of speech)".*

*Quoted by Kallinātha, the commentator of the Saṅgīta-ratnākara (Anandaśrama Edition, p. 39) but missing in the printed edition (Trivandrum Sanskrit Series, p. 28).

Through Saṅgīta-makaranda of Nārada (between the 7th and 11th centuries A.D.) who describes masculine, feminine and neuter rāgas we pass on to Saṅgīta-ratnākara by Śārṅgadeva who though living in the 13th Century A.D., sums up the achievements of the Hindu Period.

Śārṅgadeva's family originally belonged to Kashmere whence his grandfather travelled to the south and settled there. Saṅgīta-ratnākara is the most exhaustive treatise on Hindustani music and is held in great respect by all subsequent writers. The book consists of chapters on notes, discussion of rāgas, miscellaneous topics, musical compositions, rhythms, musical instruments and dancing. Śārṅgadeva describes śruti, svara, grāma (with an additional and obsolete gāndhāra grāma), alaṅkāra, jāti, mūrchanā, rāga, varṇa, vādī, saṁvādī, vivādī, anuvādī at length and summarises skilfully all that has been said by previous writers.

He mentions mārṅga-saṅgīta or ancient music and deśī-saṅgīta or current music and it seems old-fashioned jātis were disappearing and more modern rāgas were gaining strength. The form of deśī music may be nibaddha (regular) or anibaddha (irregular). A regular composition like prabandha

may have four sections namely udgrāha, melāpaka, dhruva and ābhoga. Ālāpti means unfolding and owing to the absence of regular features is assigned to the irregular type. In rāgālāpti a musician develops a rāga with reference to four svasthānas or sections of a rāga each of which has a fixed range of notes. Prabandha and ālāpti are compositions similar to modern songs and ālāpa.

Śārṅgadeva describes the octave as consisting of seven śuddha and twelve vikṛta notes in a complicated manner but it seems he uses the same notes as Bharata (See App. II). Ākṣiptikā is the name of the notation of the song with notes, words and rhythm. The śuddha notes of the three consecutive octaves mandra, madhya and tāra are denoted thus :—
 śā ri
 ga mā pa dha ni sa ri ga ma pa dha ni
 | | | | | |
 sa ri ga ma pa dha ni. The mandra and tāra notes have respectively dots and vertical lines overhead, the middle octave having no signs. Time-value of notes is not clearly stated. No further progress was made till the latter part of the 19th century

He divides rāgas into grāmarāga, uparāga, rāga, bhāṣa, vibhāṣā, antarabhāṣā, ragāṅga, bhāṣāṅga, kriyāṅga, and upāṅga. They seem to be interrelated

though the relation is not clearly explained. He mentions some rāgas which are no longer in vogue and other rāgas as current. There are several varieties of Varāṭi, Gurjarī, Toḍi, Velāvali and Gauḍa. Season and particular periods of day and night are assigned to rāgas.

He treats rhythm in the same way as Bharata but states the thing more clearly. Tāla is etymologically derived from a word signifying the palm of the hand and means clapping the hands together. A mātrā is the measure of time required to pronounce five light syllables. The durations of druta (fast), laghu (light) guru (heavy), pluta (prolate) are half, one, two and three mātrā (or mātrās) respectively. Time is regulated by laghu or other durations and this measuring is done by tāla. Thus ekatālikā has one druta duration or half a mātrā and chatustāla has one guru and three druta durations or three and a half mātrās. It will be seen that no mention is made of any stress or accent and the old musical rhythms have some analogy to Sanskrit poetic metres.

Laya is the resting interval between the actions (clapping of hands) and means the rate of speed of rhythm. It is of three kinds namely druta or fast,

madhya or medium, and vilamba (also vilambita) or slow. Yati (the same word in prosody means cæsura or pause) regulates the progress or flow of the laya. Thus in the yati called samā the song has the same laya in the beginning, middle and the end.

Certain speech-sounds imitating the sounds produced by instruments of percussion are called pāṭa. Usually various combinations of sixteen consonants k kh g gh ṭ ṭh etc., are used to represent these sounds.

B. THE MUHAMMADAN PERIOD.

During the Muhammadan Period the technical terms and the basic theory remain the same but Persian names of several rāgas occur which indicate the fusing of the two systems resulting in the enrichment of Hindustani music. But two systems cannot combine unless they are related somewhere in an intimate way. The evolution of rāgas seems to have occurred not only in India but in several culture-areas of the Near East i. e. in Egypt, Arabia and Persia. There might have been parallel developments or the idea might have spread by diffusion.

The treatises of this period concern themselves with the rāgas of the ṣaḍja-grāma and for this nearly

all of them adopt a twelve note octave. Reference to other grāmas and to mārṅga-saṅgita or ancient music is absent and the writers hardly describe either the instruments or the rhythms. Almost everything else they copy verbatim from the treatises of the Hindu Period, specially from Saṅgita-ratnākara.

The writers may be described as belonging to Northern and Southern schools according as they deal with the music of Northern and Southern India. But it is difficult to draw a sharp line of demarcation for the basic structure is the same and as many of them include rāgas both from the north and the south. Also it appears that the southern writers often came to the north to study the music prevailing there. Selecting two from each group, the north is represented by Lochana and Ahobala and the south by Rāmāmātya and Somanātha.

THE NORTHERN SCHOOL.

Lochana from his statement seems to have written Rāga-taraṅgiṇī in 1160 A. D. However as he quotes from the poet Vidyāpati it is doubtful if he wrote his book earlier than the 14th century. His śuddha notes are placed at the usual intervals of śrutis. The

vikṛta notes are komala or flattened and tivra or sharpened forms of the śuddha notes. Consequently a śuddha note occupies a central position and the vikṛtas are obtained by flattening or sharpening it. It is the same with Ahobala and in it they differ from the southern writers who sharpen their śuddha notes ri, ga, dha, ni to get their vikṛtas. Thus when the notes ri and dha are sung leaving their final śrutis they are regarded as komala and when ga takes the first śruti of ma it is considered as a tivra note. When ga takes the second, third and fourth śrutis of ma, it becomes tivrātara, tivrātama and ati-tivrātama. Sa and pa have no vikṛtas. Though the octave consists of seven śuddha and ten vikṛtas, Lochana uses only twelve notes in the octave in describing the rāgas. The śuddha scale seems to be similar to the scale of the modern Kāphi rāga (See chart in App. VII).

Examples of ālāpa and of songs in the rāgas are omitted. Āroha and avaroha of rāgas are not stated except in the case of Bhairavi. Śaḍja is regarded as the key-note to the notes succeeding in order. Rāgas are classified under twelve samsthitis or scales i. e. Bhairavi (sa ri ga ma pa dha ni), Toḍi (sa ri ga ma pa dha ni), Gauri (sa ri ga ma pa dha ni), Karnaṭa (sa

ri ga ma pa dha ni), Kedāra (sa ri ga ma pa dha ni),
 Imana (sa ri ga ma pa dha ni) etc., A long list of
 rāga-saṅkara or mixtures of rāgas is given.

He also mentions the rāga-rāgiṇī system in which the rāgas Bhairava, Kaiśika, Hindola, Dipaka, Śri, and Megha are conceived as husbands with rāgiṇīs as wives and also describes the dhyānas or pictorial contemplations.* The word-protraitures are the source of the famous rāga-rāgiṇī pictures in Indian painting. These representations give no clue, however, to the actual notes used in the rāgas.

The rāgas have their stated periods for singing with the provision that singers will come to no harm if they sing on the stage, at royal order or after ten in the night.

Saṅgita-pārijāta, perhaps the most notable treatise of the northern school, by Ahobala was written not later than the 17th century. He does not mention the date of writing but the book was translated into Persian in 1724. Bhāva-bhaṭṭa who lived in the latter half of the 17th century also quotes extracts

* Quoted by Bhatkhande in his pamphlet "A Short Survey of the Music of Upper India" but omitted in his edition of Rāga-taraṅgiṇī.

from him. From his description of rāgas one may conclude that he had seen Rāga-taraṅgiṇī by Lochana. He describes seven śuddha and twenty-two vikṛtas in the octave but he uses only twelve notes when he explains the rāgas and also when he describes the wire-lengths of notes. (See App. VII).

He is usually regarded as the first among the writers to describe notes in terms of wire-lengths and he helps us to calculate definitely the pitches of the seven śuddha and five vikṛta notes. He says, 'As the notes can be produced on the wire and be seen with the eyes, the places on the wire are mentioned for the clear grasp of the notes. The higher sa (sa's octave) is situated in the middle of the sound-producing part of the wire on the vīṇā. Ma lies in the middle of the wire between sa and the higher sa. Pa is situated at one third of the total wire-length from the top. Ga is placed in the middle of sa and pa. Ri is situated at one third of the length between sa and pa. Dha lies in the middle (See App. IX) of the higher sa and pa. Ni is placed at two-thirds of the distance from pa between higher sa and pa." Taking the length of the wire to be thirty-six inches and the vibration-number of sa to be 264 we get the following notes.

Note	Wire-length	Vib. No.
sa	36	264
ri	32	297
ga	30	316·8
ma	27	352
pa	24	396
dha	21	452·5
ni	20	475·5
sa	18	528

His vikṛta notes are similarly obtained by dividing portions of wire into two or three equal parts. The śuddha scale is similar to the scale of the modern Kāphi rāga.

Ahobala is not very systematic in his classification of rāgas into melas. A mela, he says, is a series of notes capable of manifesting (producing) a rāga. Not all of the 117 rāgas have been classified and two melas have been repeated for no good reason. His Śaṅkarābharāṇa (sa ri ga ma pa dha ni) and Gaurī (sa ri ga ma pa dha ni) are the same as Velāvalī and Mālava. Each rāga contains its ālāpa but it is not clearly expressed as the three octaves are not indicated. Āroha and avaroha of a rāga are not stated (as it is easy to find them from the ālāpas). Graha, amśa and nyāsa are often mentioned in relation to

rāgas. Ahobala states the time of singing the rāgas but says that some rāgas may be sung at any time.

THE SOUTHERN SCHOOL.

Svaramela-kalānidhi was composed by Rāmāmātya in 1550 A. D. The treatment of music is remarkably lucid and rational. It appears that the current practice in his time was in conflict with contemporary theory. Rāmāmātya says, "Music should conform to current practice and not to (ancient) definitions, for in the absence of the music in vogue, there can be no enjoyment." The contention was not new and it could be traced back to Śārṅgadeva's time. Śārṅgadeva says "These sciences are regarded as conforming to current practice. When science (as contained in the ancient texts) is in conflict with the practice, it (the texts) should be interpreted so as to bring it in harmony with practice." This injunction made the texts pretty elastic and was responsible for a good deal of confusion in the history of music. It would have been much better to begin anew the grammar of music.

After criticising some inconsistencies in the definitions of notes by Śārṅgadeva (See App. II) Rāmāmātya describes the seven śuddha and seven vikṛta

notes. The southern nomenclature is different from the northern and deserves special notice. The śuddha notes have the usual number of śrutis between them. The seven vikṛta notes are sādihāraṇa ga, antara ga, chyuta ma, chyuta pa, kaiśika ni, kākālī ni and chyuta sa. Sa, ma and pa are called chyuta sa, chyuta ma and chyuta pa when they are placed on their third śruti. When ga is placed on the first and second śrutis of ma, it is known as sādihāraṇa ga and antara ga respectively. When ni is placed on the first and second śrutis of sa, it is called kaiśika ni and kākālī ni respectively. There are several alternative names of śuddha and vikṛta notes (See App. VII). But when Rāmāmātya describes the viṇa he omits placing frets for antara ga and kākālī ni. "If two frets are placed" he says "for producing kākālī and antara notes, it will hamper playing owing to narrow space (between frets)." The number of notes is thus twelve and the intervals between the notes are equal according to the manner of placing the frets. Thus there are two notes between ga and ma in the southern system in the place of one note between ga and ma in the northern school. This makes the southern śuddha ri and ga correspond to the komala ri and śuddha ri of the north and so is

the case with śuddha dha and ni. It is curious that the distribution of śrutis is the same for both.

He classifies rāgas under fifteen or twenty scales according as the vikṛtas are five or seven in number. The scale comprising only śuddha notes is named Mukhāri. He also qualifies rāgas as good, mediocre and bad. The good rāgas are fit to be used for songs, prabandhas, ālāpa and ṭhāya (sections of rāgas). The few mediocre rāgas are used for brief compositions (See Somanātha, the next writer, for similar but better definitions). In all these good, mediocre and bad rāgas are included many mixed rāgas which are confusing to the ordinary people. They are not used in ṭhāya, ālāpa and prabandha and as such are not favoured by those learned in music. Old rules and restrictions seem to have lost much force and we read, "All popular rāgas are referred to the śaḍja-grāma and graha, amśa, nyāsa, śāḍava, auḍava, and completeness (according to old texts) may or may not occur in all the rāgas owing to their being modern ones."

Examples of ālāpa, āroha and avaroha do not occur. Names of foreign rāgas like Hejuiji and Turuṣka-toḍi are mentioned.

Somanātha, another southern writer, wrote Rāga-

vivodha in 1609. His śuddha and vikṛta notes and the placing of frets on the vīṇa (with a minor difference) are the same as Rāmāmātya's. But he introduces alternative northern terms tīvra, tīvra-tara and tīvra-tāma (See App. VII). He remarks the absence of vikṛta of sa and pa in contemporary music. He also omits antara ga and kākalī ni in his description of vīṇa thus using only twelve notes in the octave. He refers to the custom (common to all Indian performers on plucked string instruments) of pulling the wire with the finger to produce quarter-tones in addition to regular notes.

An elaborate system of notation has been described to provide for different ways of producing sounds on the string instrument. The vikṛta notes, however, are not differently indicated from śuddha notes and one must guess them from the scales to which the rāgas belong. Śārṅgadeva's method of indicating the octaves has been adopted but the time-value of the notes is not clearly explained.

A rāga is called śuddha when it can create artistic pleasure with its own resources. Chhāyāлага depends on other rāgas for its nourishment and saṅkirṇa rāgas are mixtures of the two former varieties. The names also occur in Ratnākara. Śārṅgadeva describes

certain compositions as śuddha when they follow grammar strictly and as chhāyāлага when they are similar to śuddha compositions. This shows that writers on music and possibly musicians too were conscious of the similarity between rāgas and of the creation of rāgas from the intermingling of other rāgas. Both the aspects are common features in modern rāgas.

A good rāga is fit to be used in ālāpa, ālapti and prabandha. A mediocre rāga has all the qualities of the former but is not in general use among the people. A bad rāga, though very popular, cannot be used for ālāpa and other elaborate compositions. This classification by Somanātha is similar to the modern grouping of rāgas into prasiddha or well-known rāgas, aprasiddha or unfamiliar rāgas and dhunes or tunes.

Rāgas are arranged under twenty three melas or scales, Mukhārī being the śuddha scale. Mela is a series of notes which helps to collect rāgas in groups and is called thāṭa in common dialect. He says that the same rāga may have a different name and a different time of singing according to provinces in which they are sung and as such he follows the opinion of the majority of musicians. He divides the day and night into dawn, early morning, morning, noon,

after-noon, evening, early night, and night and distributes the rāgas among them. Following Lochana he writes word-pictures of rāgas.

Popular and colloquial names of rāgas *i. e.*, Sorathā for Saurāstra, Mevādā for Dhavala, Sindhoḍā for Saindhavi etc. are noticed. He refers to certain new (mainly Persian) rāgas and mentions their resemblance with Indian rāgas. Thus Toḍi, Bhairava, Rāmakrī, Vihaṅgaḍa, Deśakāra, Saindhavi, Kalyāṇa, Devakrī, Velāvali and Karṇāṭa are respectively compared to Husenī, Julupha, Musali, Navaroja, Bākhareja, Hijeja, Yamana, Puṣka, Sarpardā and Irākha.

Sanskrit books in orthodox style continued to be written till the first quarter of the 18th century, that is, about 100 years before Capt. Willard published his book on Hindustani music in English.

Chapter III.

WILLARD.

‘A Treatise on the Music of Hindoostan’ (pp. 177) was printed at the Baptist Mission Press, Calcutta, in 1834. It was written by Captain N. Augustus Willard, who, it appears from the title page, was an officer commanding in the service of H. H. the Nawab of Banda. We also know that “The author was known to be a skilful performer himself on several instruments and to have enjoyed local advantages of observation from his appointment at the court of the Nawab of Banda.*

This is the earliest systematic treatise on Hindustani music and is delightful reading even after the lapse of a century. Willard was a cultured, well read gentleman thoroughly at home in Hindustani and the range of treatment was by no means narrow and restricted, as may be seen from the author’s summary

*Scientific Intelligence. Journal of the Asiatic Society, Vol. XXV. 1834. Quoted by Raja S. M. Tagore in “Hindu Music from various Authors”, 1875.

of contents :—“The similarity of the music of Egypt and Greece to that of this country has been traced and pointed out, harmony and melody have been compared ; and time noticed. The varieties of song have been enumerated, and the character of each detailed ; a brief account of the principal musicians super-added, and the work concluded with a short alphabetical glossary of the most useful terms.”

The great merit of the book lies in the fact that the approach of the subject chosen by Willard was Indian and as such intelligible to Indians. He treats Hindustani music in a general, descriptive way without discussing particular instances. But the book is valuable because the data were collected largely from professional musicians and observations and generalisations based on them show great insight in and sound acquaintance with the professional technique. Willard says in the Preface, “I have not confined myself to the details in books, but have consulted the most famous performers, both Hindoos and Moosulmans, the first veenkars in India, the more expert musicians of Lukhnow.” As this is the first recorded and systematised statement of information received from musicians, all the writers succeeding Willard have drawn both inspiration and material from this

source. Banerjee speaks highly of the work done by Sir W. Jones and Capt. Willard and of their timely help towards collecting material for Hindustani music.

As the Sanskrit treatises omit many items of interest that may be collected from professional musicians, Willard's book is a significant departure from the orthodox treatises. His comments in this respect are interesting. He says, "When from the theory of music a defection took place of its practice, and men of learning confined themselves exclusively to the former, while the latter branch was abandoned entirely to the illiterate, all attempts to elucidate music from rules laid down in books, a science incapable of explanation by mere words, became idle. This is the reason why even so able and eminent an orientalist as Sir William Jones has failed. Sir William Jones, it seems, confined his research to that phoenix, a learned Pundit, who might likewise be a musician, but I believe such a person does not exist in Hindoostan." Willard was wise in siding with the musicians in this pundit-musician controversy but the remarks were uncharitable where Sir Jones was concerned, for the latter did try to have his conclusions verified by profes-

sionals. A casual glance at his article on the Musical Modes of Hindoos, written in 1784, will convince any body that Jones consulted pundits and professionals alike but had not sufficient leisure to devote to the subject.

It is evident, on the other hand, from the writings of Willard that he had no means of checking the data collected from professionals, in the light of Sanskrit treatises on the subject. But this is in some respects to our advantage. We get almost intact the lore of musical knowledge among the professionals in the first quarter of the nineteenth century. We find that the professional equipment of technical terms was not inconsiderable and that the musicians formed a good working hypothesis out of fragments gleaned from Sanskrit texts. It may suffice here to present a few principal trends of thought which show Willard took pains to understand critically the details supplied by musicians.

“Hindoostanee melodies are short, lengthened by repetitions and variations. They all partake of the nature of what is denominated by us Rondo, the piece being invariably concluded with the first strain, and sometimes with the first bar or at least with the first note of the bar (MH 48)”. “The peculiar

nature of the melody of Hindoostan not only permits but enjoins the singer, if he has the least pretension to excel in it, not to sing a song throughout more than once in its naked form ; but on its repetitions, which is a natural consequence, occasioned by the brevity of the pieces in general, to break off sometimes at the conclusion, at other times at the commencement, middle, or any certain part of a measure, and fall into a rhapsodical embellishment called Alap, and after going through a variety of ad libitum passages rejoin the melody with as much grace as if he had never been disunited, the musical accompaniment all the while keeping time (MH 35)."

This is a good description of the way a rāga is sung. A song set in a particular rāga is first sung and then passages are improvised with the help of the ālāpa or the development of the rāga every time finishing with the first line of the song. Here the ālāpa commences after the song has once been sung. Sometimes the ālāpa occurs as a complete and separate composition before the song without regular rhythmical accompaniment.

He says, "A .That comes nearest to what with us is implied by a mode, and consists in determining the exact relative distances which constitute an octave,

with respect to each other ; while the rāginee disposes of those sounds in a given succession, and determine the principal sounds. The same That may be adapted to several Raginees, by a different order of succession, whereas no Raginee can be played but on its own proper That (MH 51)". It means that several rāgas may have the same thāṭa or scale which arranges the notes in order of pitch. The notes of a rāga progress in a definite manner, that is, they have what we now call an āroha and an avaroha and rāgas in the same scale having different progressions of notes are different from one another.

He describes some important features of rāgas :—
 "It is likewise not a song, for able performers can adapt the words of a song to any Raginee, nor does a change of time destroy its inherent quality (MH 51)". "Some Rags and Raginees resemble each other in the similarity and succession of their sounds or tones, but differ in the Srooties which gives them a claim to distinction (MH 56)".

A very important difference with the Sanskrit writers arises. The śuddha scale is no longer the scale of Kāphi (sa ri ga ma pa dha. ni) but is that of Vilāval (sa ri ga ma pa dha ni). Jones in his paper on the musical Modes of the Hindoos says,

“They unanimously reckon twenty-two śruties, or quarters or triads of a tone, in their octave. They do not pretend that these minute intervals are mathematically equal, but consider them as equal in practice and allot them to the several notes... I requested a German professor of music to accompany with his violin a Hindoo lutanist who sung by note some popular airs on the love of Krishna and Radha, he assured me that the scales were the same, and Mr. Shore afterwards informed me, that, when the voice of a native singer was in tune with his harpsichord, he found the Hindoo series of seven notes to ascend, like ours, by a sharp third”. The notes are arranged according to the following order replacing the śrutis between sa and re by those between ni and sa.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
sa		re		ga		ma						pa				dha		ni		sa	

He is supported by Willard in his statement. We may remark here that this scale seems to be of great antiquity as the professional musicians, some of whom are descended from Tansen who lived during Akbar's reign, have no knowledge about the existence of any other śuddha scale except their own śuddha scale which is similar to the European scale of C major. (See App. II).

Willard mentions Soodh (śuddha), Mahasoodh (mahāśuddha), salung (chāyāлага), Sankeerun (Saṅkir-ṇa) rāgas like Sanskrit writers with similar meanings. It appears he found uncertainty prevailing with respect to the classification of rāgas into Rags, Raginees (wives), their Putras (sons) and Bharjyas (daughters-in-law) (MH 53.) It appears that rāgas were classified according to both scales and rāga-rāgiṇī system but in the absence of illustrations it is difficult to say how it was done.

A number of mixed rāgas are mentioned. A few examples may be given :—

Bhoopali—Bilawal and Cūlian

Shuhana—Furdust ant Canhra

Camod—Gound and Bilawal

Desee—Tori and Khut rag

Humeer—Kidara, Emun and Soodh Cūlian

He remarks about the naming of mixed rāgas, "The rule for determining the names, is agreeably, to some authorities, to name the principal one last, and that which is introduced in it, first; as Pooria Dhanasree; others, more naturally say, that, which is introduced in the first part of the song should be mentioned first, and the other or others subjoined to it, in regular succession *i. e.* Shyam Ramculee

(MH 57).” It may be stated here that no hard and fast rule is observed in naming mixed rāgas. Generally the constituent rāgas are easily analysed, but it is sometimes extremely difficult to detect the elements as in the modern Puriyā Dhanāśrī. But mixed rāgas do not always receive a mixed name as most of the modern rāgas without compound names are the products of inter-mixture.

About the wording of songs Willard says, “A good number of pieces are in dignified prose, of an elevated strain, peculiar to the Sangskrit and the languages derived from it. These are not strictly confined to poetical feet and admit of much variety—These pieces and all those Kheals as well as those of some other species, are commonly in the language spoken in Vruj and in the disirict of Khyrabad (MH 35)”.

He also explains the different styles of compositions, some instances of which are given below :—

Dhoorpad—the subject is the recital of the memorable action of the heroes or other didactic theme. It also engrosses love matters. The style is very masculine and almost entirely devoid of studied ornamental flourishes. It dates from the time of Raja Man of Gwalior. Dhoorpad has four

Tooks or strains :—1. Sthul, Sthayee or Bedha 2. Antara 3. Ubhog. 4. Bhog.

Kheal—subject is generally a love tale. The style is extremely graceful and replete with studied elegance and embellishment. Sultan Haosyn Shur-quee of Jaunpur is the inventor of this class of song generally consisting of two Tooks.

Kheal is perhaps the more immediate sphere of the pathetic. To a person who understands the language sufficiently, it is enough to hear a few good Kheals, to be convinced of the beauties of Hindoostani songs, both with regard to the pathos of the poetry and delicacy of melody.

Tuppa—brought to perfection by Shoree, generally sung in the language spoken in Punjab or a mixed jargon of that and Hindi.

Thoomree—This is in an impure dialect of the Vrijbhasa.

Holee—like Dhoorpad.

Tirbut and Terana—No words are adapted to these.

Dhoon—It is used in contra distinction to Rag and Raginee ; any piece of melody not strictly in conformity with the established is thus characterised.

In discussing melody and harmony it is remarkable how singularly free he was from the bias that harmonic music is essentially and absolutely superior to the melodic variety. But he remarks once, "There is no doubt that harmony is a refinement on melody." It may be remarked here that there is no inevitability in melody for its developing into harmony and the present European melody is entirely different from melody in the oriental sense. The truth is that melody can remain melody and develop into richer and more complex varieties instead of becoming harmony.

Chapter IV.

Goswami to Bhatkhande

A. GOSWAMI

Saṅgīta-sāra or A Treatise on Hindu Music by, Kshetramohan Goswami appeared in 1868 under the patronage of Raja Sourindra Mohun Tagore. Tagore himself was the author of several books on Indian music and did a good deal to help the cause and raise the status of Indian music in India and abroad. He wrote 'Saṅgīta-sāra-saṅgraha in 1875 containing extracts from Sanskrit authors specially from Śārṅgadeva and Dāmodara ; 'Hindu Music from various authors' in 1875 collecting all articles written in English about Indian music (including Willard's book) written prior to Tagore ; and his Universal History of Music in 1896 describing the music of various nations. The last book has a good descriptive account of Indian music arranged according to provinces.

Tagore writes about Goswami in his Universal

History of Music (p. 87) "The first treatise in the same language (Bengali), written on a systematic plan, embodying the theory and practice of music was brought out by Professor Kshetra Mohun Goswami in the year 1868. He composed several airs for the Sitar and Orchestra, as also a number of songs which he published later on in his work called *Kantha Kaumudi* or a treatise on vocal music".

Goswami is the first writer to deal with the different aspects of Hindustani music. When we estimate the value of a writer's contribution, we need keep in mind the data available at the time of writing. It is unjust to use modern standards which are based on material much greater in extent than what was within reach of Goswami. The *rāgas* with their songs were mostly in the safe custody of professional musicians, none of them very eager to part with them. Though he had opportunity of coming in contact with musicians which visited Raja S. M. Tagore in Calcutta, the more celebrated families of musicians of western India were living out of his reach. The texts in Sanskrit had not been printed. He collected what he could from extracts gleaned from diverse sources.

With them he produced a comprehensive and rational treatment of music.

B. BANERJEE

Gita-sūtra-sāra or Basic Principles of Music was written in Bengali by Krishnadhan Banerjee under the patronage of His Highness the Maharaja Nripendra Narayan Bhup Bahadur of Cooch Behar. He also published 'Bangaikatāna' in 1867, 'Hindustani airs arranged for the Pianoforte' and 'Saṅgit-śikṣā' in 1868 and Śītār Sikṣā' in 1873. 'Gita-sūtra-sāra', his most well-known book, was brought out in 1885. He was held in great respect for his scholarship by contemporary musicians. Bhatkhande has translated portions of Gita-sūtra-sāra in his book.

Banerjee's achievements do not lie so much in conclusive results as in his attempting to reach the basis of music over a wide range. He has not left a single phase of music on which he does not speak with reason and insight. His critical faculty is astonishingly sensitive to finer shades of analysis, but there are times when he does not weigh carefully the opinion of musicians. This leads to hesitation and discrepancy between different views. The book is valuable for its discussion of fundamentals of music and the searching criticism of existing theories.

C. BHATKHANDE*

Pandit V. N. Bhatkhande was born at Walkeshwar, Malabar Hill, Bombay in 1160. His father was fond of music and used to play on sitar and occasionally on quran. Bhatkhande showed interest in music from early childhood and when about sixteen began taking lessons on sitar from Vallabhdas Damodar, a Bhatia gentleman who was a finished player on sitar. In 1884, he joined the Gayan Uttejak Mandali, an institution for encouraging music, as a member and learnt Dhrupads from Ravjibuvā Belbagkar. He also met other musicians employed from time to time by the institution and used to keep detailed notes of all he learnt from them. He slowly came to have thus a thorough knowledge and a considerable material about rāgas which he utilized in the books.

From 1890 to 1900, while practising as a pleader Bhatkhande made a thorough study of the Sanskrit

* The main events of his life have been compiled from a short account (consisting of five closely-typed pages) received by me while I was one of the Associate Editors of the quarterly 'Sangeeta' in Marris College, Lucknow. Biographical details of other writers namely Willard, Goswami and Banerjee, I regret, are not available.

texts on music. From 1904 he began travelling all over India for collecting material on rāgas and their theory, and visited Calcutta, Benares, Allahabad, Delhi, Rampur, Lucknow, Agra, Gwalior, Bikaner, Jaipur, Jodhpur, Madras, Tanjore, Trivandrum, Mysore and other places of musical importance. He always looked for important manuscripts on music in public and private libraries and had them copied if found valuable. Many of these were published by him with or without translation. In 1906-1907 he employed the service of Muhammad Ali Khan and Ashak Ali Khan of the celebrated Manarang family of Jaipur and got them sing to the phonograph nearly four hundred kheyals in different rāgas.

His first book, *Lakṣya Saṅgitam* in Sanskrit, was published in 1910 which was soon followed by the first volume of *Hindustani Saṅgit Paddhati* in Marathi on the principles of Hindustani music, the second, third and fourth volumes being out in 1913, 1914 and in 1932. In 1916 Bhaṭkhande began publishing notations of songs called *Gīta Mālīkā* in eighteen parts many of which were reprinted in the four volumes of *Kramik Pustak Mālīkā* issued from 1920. Four parts of *Kramik* contain about a thousand standard songs and *ālāpa* in the principal

rāgas. The songs were collected for the most part from distinguished families of musicians of Jaipur, Rampur, Gwalior and Baroda. The sargams (songs composed of names of notes namely sa, re, ga etc instead of words) and lakṣaṇ-gitas (songs describing the character of rāgas and composed after the imitation of well-known kheyals and Dhrupads) included in the Kramik are Bhatkhandé's compositions. All the books are sold practically at cost price and the little profit made is utilized for defraying the expenses of new editions.

In 1912 Bhatkhandé left the legal profession and devoted himself solely to music. Through his initiative in 1916, 1918, 1919 and 1925 four sessions of All-India Music Conferences were held in Baroda, Delhi, Benares and Lucknow where noted artists demonstrated and important topics on music were discussed. He trained some students and musicians from Gwalior and Baroda and also served as an examiner to the music institutions founded by him in Gwalior, Baroda and Lucknow. He died in 1936.

A summary of Bhatkhandé's theoretical contribution in English will be found in his articles (1) "The Modern Hindustani Rāga system and the

simplest method of studying the same" in the Report of 4th All India Music Conference in Lucknow, 1925, (2) "Music Systems of the 15th, 16th, 17th, and 18th centuries" in the first four issues of *Sangeeta*, quarterly journal, Marris College, Lucknow ; (3) "A short Survey of the Music of Upper India" by V. N. Bhatkhande, Bombay 1917 (issued in pamphlet form but now out of print). A short descriptive summary of *rāgas* will be found in *Lakṣya-saṅgitam*, Second Edition, 1934.

Major contribution of Bhatkhande consists of the collection of the *rāgas* with their *ālāpas* and standard songs. His four volumes of *Kramik Pustak* are a rich store-house of famous compositions representing the celebrated families of musicians and are the standard texts in Northern India. His *Hindustani Saṅgit Paddhati* in four volumes contains mainly a description of the *rāgas* with their *ālāpa* and their variants in the past and present and is the best introduction to the *rāgas* of Hindustan. He busies himself with the fundamentals in as far as they are helpful to the practical arrangement of material and to making it available in a suitable form to musicians. His theoretical view-points lie scattered over the pages of the *Paddhati* and of the

introductions of the Kramik and very few of the abstract principles receive in his hands a thorough and independent treatment. For instance, a good account of his complex time-theory with detailed examples does not occur in his writings.

His knowledge of the Sanskrit texts was profound and his explanation of the scales of post-Ratnākar writers made a comparative study of the texts in relation to rāgas possible for the first time. His editions of treatises most of which are out of print now, reveal a scholar who is thoroughly at home in his subject.

There was a keen desire in all the three writers to find authority from the past for the present basis of Hindustani music. Yet this did not blind them to the inaccurate statements and faulty generalisations made in the past, for they did not think that the ancients had thought out everything about music for all time.

A comparative study of the above writers divided into suitable sections follows in the next Chapter.

Chapter. V.

The Problems.

ĀLĀPA.

Nothing is more characteristic of a rāga than ālāpa. It is what distinguishes a rāga from being a mere song. Songs themselves, as sung in the classical style, always contain ālāpa or improvised additions suited to the nature of a rāga. Again it may be sung or played independently of songs or instrumental compositions (named 'gat').

In ālāpa and in the compositions called Dhrupads there are usually four sections namely sthāi, antarā, sañchāri and ābhoga. The sthāi is generally limited to the low and medium octaves. The antarā usually begins near the middle of the medium octave and extends to the high octave. The sañchāri and ābhoga are more or less similar to the sthāi and antarā. These sections resemble the four svasthānas in rāgālaṭṭi of Śārṅgadeva and show how the same manner of developing a rāga was current in the

13th century, though it need not be surmised that the present technique is a replica of the past.

The ālāpa is the most abstract part of the rāgas and to the uninitiated proves to be a source of confusion and wonder. It is usually sung with meaningless words like tā, nā, tom, de, num etc. It is also devoid of tāla or regular rhythms and is solely regulated by slow, medium and fast laya or speed. The usual procedure is to develop the ālāpa on the lines indicated by the āroha and avaroha of the rāgas. Certain notes come into prominence during the development *i. e.*, sa, ga, pa, ni, in Yaman, Behāg and Pūrvi. Such notes are known as mukāms or resting places in a rāga and resemble the amśa (or amśas) of the Sanskrit writers.

What relation does the ālāpa bear to the songs in a rāga? Hindustani musicians base their idea of a rāga on standard songs (called Chij :—lit. a musical thing or a song) and in their discussions about rāgas they are in the habit of referring to them. Banerjee thinks ālāpa grows out of songs and he who has a good collection of songs in a rāga at his disposal may easily pick it up (But he does not develop his statement). From this it may be concluded that the songs as simple compositions were the first

to come and were followed by more complicated forms of ālāpa (See App. V.)

Ṣaḍja or the Tonic.

Do the notes enjoy autonomy and act independently or do they obey some authority?

We have already seen in Br̥haddeśi that ṣaḍja is the dominating note and other notes are subsidiary to it. Most of the post-Ratnākara writers reiterate this important function of ṣaḍja. Ṣaḍja, Goswami says, is the key-note of the scale and there can be no sensible perception of re, ga, ma etc. unless there is a ṣaḍja before it.

But other notes like the amśas or the mukāms occasionally function as important centres in a rāga and may then be regarded as additional tonics, but their position is always secondary to ṣaḍja or the primary tonic.

Vādi, Saṁvādi and Amśa.

Certain notes seem to be more important than others. But can we fix their number or arrange them in order of importance?

The proper significance of vādi and saṁvādi has not yet been settled satisfactorily. Present usage

following the definitions in Ratnākara regards the vādi as the most important note which is used often-er than other notes. Samvādi is next to vādi in importance, the anuvādis are the remaining notes and the vivādis are inimical notes generally left out. It is with the vādi and samvādi we are primarily concerned for the last two are not generally mentioned in relation to the rāgas.

Is it always possible to select the most important note, for the greatest difficulty seems to be the choice of such a note out of all important notes in a rāga ? Let us examine some cases. Śaḍja is by far the most important note in a rāga owing to its position as the tonic but it is not the vādi in all rāgas. In rāgas like Lalit, Kedār and Mālkaus ma seems to be the most prominent note, but it is possible for a clever musician to develop Kedār and Mālkaus without using ma very often. With respect to most of the other rāgas there seems to reign utter confusion. How shall we decide in favour of the most important note in rāgas like Darbāri Kānāḍā, Yaman, Behāg, Chhāyānaṭ, Kāmod, Khamāj, Kāphi, Bhairavi, Vilāval, Toḍi, etc ? Banerjee points out this difficulty in selecting the vādi about Yaman and thinks that the conception of vādi and samvādi is not useful

for a knowledge of the rāgas, for there prevails a great uncertainty about their selection. But he sticks to describing rāgas with vādī and samvādī because he cannot deny that certain notes are more important than others (GS. p. 71). Though we are conscious of the relative importance of certain notes in a rāga, we find it difficult either to fix their number or to arrange them in order of importance.

Bhatkhande places a great emphasis on the conception of vādī in relation to rāgas. Every rāga, he says, has a vādī exceeding all others in importance and divides the rāgas into pūrva or belonging to the fore-part of the scale (between sa and pa) and uttara or belonging to the hind-part of the scale (between ma and sa) according to the position of vādī in the first or second half of the scale. The samvādī notes are next to vādī in importance and are usually selected by him as the fourth or fifth of the vādī.

This is open to objections, for there may be two or several notes of equal importance in the rāga in actual practice. He does not answer Banerjee's objection to calling a certain note vādī and treating all others as less important. Also vādī and samvādī need not stand in the relation of the fourth or fifth to each other for the two samvādīs (and not the vādī

and saṁvādi) have that relation according to Sanskrit texts.

What is the way out of the impasse ? Why not get rid of vādi and saṁvādi and in their place name the several important notes. Primary significance of saṁvādi, anuvādi and vivādi was something pertaining to consonance and dissonance of notes. But happily there is another term which is used by the writers in the sense of an important note in a rāga. All the Sanskrit writers use amśa instead of vādi and saṁvādi for expressing the important note of a rāga with the advantage that a rāga may have more than one amśa (See App. IV). Hindustani music also contains a very apt Hindustani term in mukāms or notes which serve as resting places in a rāga (Saṅgit Paddhati vol. 3, pp. 17, 65) and they fit in happily with the significance of amśa.

Āroha and Avaroha

Āroha and avaroha are the particular ways of ascending and descending of notes in a rāga and the conception is similar to that put forward by Mataṅga about 400 A.D. Bhatkhande is the first to define āroha and avaroha with reference to the progression of notes in a rāga. He says that āroha and avaroha

are fixed (Report of the All India Music Conference vol. 2, p. 128) and we have to see how far this is justifiable from practice.

Let us take a concrete example namely the āroha and avaroha of the rāga Des according to Bhatkhande :—

Āroha—sa, re, ma pa, ni sā. Avaroha—sā ni dha pa, ma ga, re ga, sa. We also see from the development of the rāga that in addition to ‘re ma pa’ the rāga ascends occasionally in a slightly different way by ‘re ga ma pa’. Under the circumstances it need not be said that the āroha and avaroha are fixed but they are the most important of the several ways of ascent and descent.

Pakaḍ, according to Bhatkhande, is the specific combinations of notes that by itself is able to depict a rāga *i. e.* in the case of Des : re, ma pa, ni dha pa, pa dha pa ma, ga re ga sa. It will be seen that the exact order of the musical phrases in a pakaḍ is not essential for we can write the above pakaḍ as pa dha pa ma, ga re ga sa, re ma pa, ni dha pa. We may even omit the first phrase pa dha pa ma. (See App. VIII). Pakaḍ is the most important portion in the āroha and avaroha. Analysis of a rāga in

terms of āroha and avaroha and pakad has made the discussion of similar rāgas much easier and rational and is a valuable contribution by Bhatkhande.

Notation

Hindus had some form of notation which will be evident from books written by Śārṅgadva and Somanātha. But there is little to show that it was either improved or extensively used by musicians.

It is not possible to reproduce an Indian song exactly in notation, but that does not make notation useless. The object of notation is to preserve records of songs and to aid memory. Goswami bases his system on the ancient Hindu notation with additional signs of his own and argues against the introduction of staff-notation which uses dots for notes on lines and spaces. He says the way of using notes and rhythms in Indian music is different from that of Europe and staff-notation is not suited to Indian needs. But there is another system in Europe, he remarks, namely Tonic Solfa in which notes are represented by letters in the Indian way. It is better to develop the Indian system, he rightly concludes, like Tonic Solfa as it does not introduce strange and unfamiliar signs.

In the first edition of his book, Goswami uses three parallel and horizontal lines to denote the three octaves.

Mandra sa re ga ma pa dha ni

Madhya sa re ga ma pa dha ni

Tāra sa re ga ma pa dha ni

But as this occupies some space, he uses afterwards the notes on a single line denoting mandra and tāra octaves by dots below and above the notes respectively.

sạ rẹ gạ mạ p̣ dhạ nị sa re ga ma pa dha ni
 sạ rẹ gạ mạ pạ dhạ nị

Lower and higher octaves than these may be denoted by increasing the dots above and below. A triangle and a flag above a note indicate that it is komala or flat and tīvra or sharp. Tivra sign is used only in the case of ma and komala with respect to re, ga, dha, ni. Time-value of notes is shown by the number of vertical strokes above notes, that is, notes having one, two or three strokes above them have so many beats. Fractions of beats are shown by \smile for half a beat, \times for one fourth of a beat and so on. His system of notation is a little cum-

brous for the different signs used for fractions of beats.

Banerjee uses both the staff-notation with some modifications and the Tonic Solfa. He prefers the staff-notation but gives no reasons for it and in many places uses it along with Tonic Solfa for the same song and the latter is always easier to follow than the complicated form of the former.

Bhatkhande tries to provide a system of notation that should be useful without being cumbrous. He has devised a system that is very simple and contains only those signs that are absolutely necessary and is now widely used in Northern India. He denotes the three octaves as Goswami and uses a short horizontal line below a note for a komala and a short vertical line above for a tivra sign. There are the following signs for expressing character of notes i. e. a bracket joining two notes above for mid or continuous transition and notes placed above a note in small letters a little to the left called kan to denote a note which is sung a little before the note proper. Each note has the time-value of a beat. Fractions of beats are shown by means of brackets below. For instance two notes within a bracket below will mean

two notes of half a beat and three notes within a bracket mean three notes of one third of a beat each.

As very rarely a note whose duration is shorter than one-eighth of a beat is used, not much space is usually necessary for denoting fractions of beats (See App. VIII).

Notes and Quarter-notes

If we admit the existence and the use of quarter-tones in Hindustani music, we have to ascertain the number of notes that are actually used in the octave.

Goswami uses twelve notes in the octave but he says occasionally notes like *tivrata* (sharper than *tivra*), *tivratama* (sharpest) and *komala-tara* (flatter than *komala*), *komalatama* (flattest) are used. They are in his opinion not really tones but are quarter-tones and though not recognised in European music, are very essential to Indian music.

Banerjee does not admit the existence of standard and definite intervals smaller than a semitone and thinks that the use of quarter-tones make the music out of tune. In his opinion quarter-tones are neither pleasing nor easy to use.

This is a sweeping generalisation by Banerjee based on insufficient data and his opinion that

quarter-tones go to make music out of tune (which proves by the way that they are actually used) will get little support from musicians. A little experiment with a string instrument with frets like the Israj would have easily convinced him that many notes (Cf. the komala notes in Śrī, Bhairav, Bhīmpalāsi etc. See also Willard) do not adhere to fixed pitches. But he rightly expresses doubt when it is alleged that quarter-tones can be used in the sense of standard intervals.

Bhatkhande often mentions the use of quarter-tones in rāgas in his Saṅgīt Paddhati but he says it is safe to describe rāgas with twelve notes in the octave to avoid fruitless discussions with conflicting views.

Summing up the views of the above writers, one may conclude that though quarter-tones are actually used, it is difficult to determine either their proper pitches or their uniform use in rāgas.

Quarter-tones or śrutis have another important function. With their help the Sanskrit writers determine the intervals between notes in a scale. There have been recently attempts to find out these intervals mathematically (See App. I).

Scale

Hindustani rāgas belong to several scales. Almost all writers of post-Ratnākar period classify rāgas according to scales. Can we find a rational basis for scales ?

We have seen that Bharata gets additional scales from ṣaḍja grāma by treating the other six notes as tonics. If we treat our śuddha scale in this manner we get some new scales i. e.

1. Sa re ga ma pa dha ni (taking re as tonic)
(Scale of the rāga Kāphi)
2. Sa re ga ma pa dha ni (taking ga as tonic)
(Scale of the rāga Bhairavi) and so on.

Banerjee follows this method with the assertion that all scales may be derived from the major and minor scales (he, however, does not discuss the minor scale). But unfortunately many important scales i. e. scales of Pūrvi, Bhairav, Mārvā and Toḍī etc. lie outside this scheme.

Bhatkhande finds he can accommodate all the rāgas within ten scales and thinks that modern Hindustani music uses only ten scales out of a possible seventy-two found out mathematically by Vyan-

katamakhi (See App. III). He says that a scale or *ṭhāṭa* should be a series of seven notes using all the notes sa, re, ga, ma, pa, dha and ni (*śuddha* or *vikṛta*). It is not necessary, he remarks, for a *ṭhāṭa* should sound sweet, for the *ṭhāṭa* is not a *rāga*. He uses ten *ṭhāṭas* and names them after the most characteristic *rāgas* called *āśraya-rāgas* in them (Banerjee does not name the scales) i. e.

Bhairav—	sa	<u>re</u>	ga	ma	pa	<u>dha</u>	ni	sa
Pūrvi —	sa	<u>re</u>	ga	ma	pa	<u>dha</u>	ni	sa
Mārvā —	sa	<u>re</u>	ga	ma	pa	dha	ni	sa
Kalyāṇ—	sa	re	ga	ma	pa	dha	ni	sa
Vilāval —	sa	re	ga	ma	pa	dha	ni	sa
								(śuddha ṭhāṭa)
Khamāj—	sa	re	ga	ma	pa	dha	ni	sa
Kāphi —	sa	re	ga	ma	pa	dha	ni	sa
Asāvāri —	sa	re	ga	ma	pa	dha	ni	sa
Bhairavī—	sa	re	ga	ma	pa	dha	ni	sa
Toḍi —	sa	re	ga	ma	pa	dha	ni	sa

It may be argued here that if the *ṭhāṭa* or scale

is a mechanical series of notes, it should be kept separate from a rāga. Bhatkhande uses the same names for thāṭas and rāgas. Again he says that a thāṭa cannot consist of less than seven notes. Both these lead to confusion as we shall see later on (See 'Classification').

Similar Rāgas

Similarity among rāgas is puzzling specially when one goes to develop them for it is often impossible to develop one without being influenced by another. Rāgas may be similar in two ways.

1. There may be almost total similarity in the āroha and avaroha of the rāgas. Such rāgas necessarily belong to the same scale.

Goswami is not very conscious of this for only once he mentions the similarity between Kalyāṇ (modern Śudh Kalyāṇ) and Bhūpālī (Saṅgita Sāra p. 374). He describes about 108 rāgas with ālāpa, but excepting some of the developments (particularly those of Khamāj, Jayjayanti, Miāñ Mallār, Jaunpurī Toḍī, Kānāḍā and Vṛndāvanī which are well-developed) similar rāgas are not clearly distinguished from one another. Some instances may be cited.

- (1) Śārpardā, Kukubha, Sukhal Velāvali, Deogiri, Nāṭikā.
- (2) Jayatśri, Māligaurā.
- (3) Sahānā, Deosāg.
- (4) Sughrāi, Āḍānā.
- (5) Kānāḍā, Nāyaki.
- (6) Maṅgal, Bhairav, Bāṅgālī, Āhiri.
- (7) Mālavi, Trivaṇ.
- (8) Mallār and Megh.

Banerjee names some groups of similar rāgas like,

- (1) Sindhuḍā, Sindhu, Kāphi.
- (2) Vibhās, Deśkār.
- (3) Bhairav, Rāmkelī, Bāṅgālī etc.

He only refers to their similarity but does not illustrate them with ālāpas. It is not always easy to find them out from the few songs in his books. He says some of them tend to disappear for people fail to distinguish one from the other. He thinks that this similarity is due to the prevalence of similar tunes in adjoining provinces or districts. Though he does not assign any reason for the existence of similar tunes in adjoining provinces (which is evidently due to the diffusion or spreading out of the same tune) this is a judicious observation.

Bhatkhande with ālāpas and numerous standard songs at his disposal goes into the subject with thoroughness. He mentions similarity between Des and Soraṭ, Paraj and Kāliṅgḍā, Bhairav and Rām-keli, Bhīmpalāsi and Dhanāśrī, Kāphi and Sindurā and between others. He tries to distinguish them with the help of āroha and āvaroha of the rāgas or with the help of the vādī for, in his opinion, vādī is the differentiating factor in similar rāgas. He saves some of them from extinction but it may be doubted if he is uniformly successful.

We have already discussed about the difficulty of selecting the vādī in a rāga and it is doubtful how far Bhatkhande succeeds when, for instance, he assigns ma and pa as vādīs of Bhīmpalāsi and Dhanāśrī respectively. His treatment of Āsāvārī (with śuddha re) and Jaunpurī suffers from uncertainty in spite of the difference in vādī and a slight change in āroha (by omitting komal dha) sanctioned by him.

The fact of the matter is that unless there is a natural tendency in rāgas to remain different from each other, it is perhaps impossible to distinguish them with artificial adjustments about which there is no unanimity among musicians. Some of these similar rāgas are bound to disappear as forecasted by

Banerjee. 'Is not such a tendency for instance, already reflected in the development of many rāgas of the Kānādā group. *i. e.* Āḍānā, Suhā, Sughrāi, Sahānā, Devaśākh, and Nāyakī. Such example are common among rāgas in almost all scales.

2. Rāgas may be similar owing to the presence of a common element called āṅga in their āroha and avaroha. Such similarity may occur among rāgas belonging to different scales.

Goswami and Banerjee name eighteen varieties of Kānādā, thirteen of Toḍī, twelve of Mallār, nine of Naṭ and seven of Sāraṅg but they do not illustrate. Banerjee mentions also several rāgas forming classes called Kalyāṇ, Velāvali, Bhairav etc. Such examples occur in Ratnākara too.

Bhatkhande explains them with details. Let us take some instances of Kānādā. Though Bāgeśvari and Bahār belong to a scale different from Darbārī Kānādā they have some Kānādā āṅga or features. ni, sa, re ga, re, sa, ni sa ni dḥa, ni sa, ga re, sa in Bāgeśvari and ni pa, ga ma re sa Bahār show Kānādā Āṅga.

This way of treating rāgas is slowly gaining importance and is explaining rāgas with reason and

insight. It has become the basis of a rational classification of rāgas.

Classification

Rāgas may be classified under scales or aṅgas. The latter has already been described. We are to go on with the former. Classification according to scales is common with the writers of the post-Ratnākar period.

Let us first state the problems that face classification according to scales. When a rāga uses only seven notes sa re ga ma pa dha ni (śuddha or vikṛta) there is no difficulty of finding its scale which is nothing but the notes arranged in order of pitch. But the case is not so simple when there are more or less notes than seven.

1. Let us examine the case when there are more than seven notes.

Banerjee finds several rāgas using notes in addition to the seven proper notes of the scale. He includes the additional notes in the scale of the rāga i. e. his scales of Yaman Kalyāṇ, Kedār, Gauḍ-sāraṅ use the scale :—sa re ga ma pa dha ni sa.

This is open to objections. A rāga may use

more than seven notes but will be usually found to belong to a particular scale to the exclusion of others. For instance at present Bhairavī and Pīlu use twelve notes of the octave but the main progressions are confined to seven-note scales. From this consideration, Yaman Kalyān's scale is sa re ga ma pa dha ni śa and Kedār and Gauḍsāraṅg belong to the śuddha scale (scale of C major).

Incidentally when explaining the passing of rāgas from one key to another, Banerjee tries to account for certain notes which are not in the scale proper (Goswami gives an exhaustive list of modulations from European music). He shows that rāga Khamāj uses both ma and tīvra ma, ni and komala ni. He says this can be explained on the hypothesis that a rāga uses additional tonics. He remarks that the existence of tīvra ma in Khamāj shows that pa is sometimes used in Khamāj as śaḍja using ni in the ascent and then tīvra ma, a semitone below, serves the same purpose as ni, a semitone below sa in the major scale. He explains the existence of two ga and two ni in Sindhu, Kāphi and Bhīmpalāsi on the same principle and tries to prove that there is a general tendency in rāgas to adopt ma and pa as tonics in addition to sa.

The main idea behind his theory that the major scale (śuddha scale) tries to reappear in other scales with the help of ma and pa as additional tonics. But he fails to account on this principle the existence of two madhyamas in Pūrvi or Vasant where the reappearance of the major scale is absolutely impossible.

Banerjee's explanation would have been far more valuable had he tried to account for these additional notes with the other Indian scales in addition to the major scale (which is the śuddha scale of Hindustani music). In spite of this he explains with reason the occurrence of at least some of the additional notes in the scales.

Bhatkhande says that extra notes like komala ni in Kedār and Hamīr are to be treated as vivādi. But it is difficult to regard on this principle ma in Pūrvi or Lalit as vivādi (lit. inimical) for they are essential to the development of the rāga (ma in fact is the vādi in Lalit).

The cause for the existence of extra notes has not yet been adequately explained. It appears, however, that a rāga is mainly confined to a scale of seven notes whatever may be the number of notes actually used (See App. III).

2. When the rāga uses six or five notes.

Banerjee is not clear on this point. He describes Vṛndāvanī (sa re ma pa ni [·]sa) belonging to the śuddha scale of the 'five-note type but in another place he seems to regard five-note scales as separate scales (G. S. p. 210).

Bhatkhande's ten scales for classification are all seven-note scales and he treats five-note and six-note scales as being derived from the above ten scales. According to him, Bhūpālī (sa re ga pa dha sa) is classed under Kalyāṇ (sa re ga ma pa dha ni sa).

This leads to serious confusion. If we regard Bhūpālī's scale to be produced from Kalyāṇ by omitting tivra ma and ni, it may as well be derived from Khamāj's scale by omitting ma and komala ni or from Vilāval's scale by omitting ma and ni. But Bhatkhande puts it under Kalyāṇ because the rāga Bhūpālī belongs to the Kalyāṇ group of rāgas as it has the feature or aṅga of Kalyāṇ. Here the rāga Bhūpālī has unmistakable affinity with Kalyāṇ but Bhūpālī's scale has no inherent relation with the scale of Kalyāṇ. Should we not rather keep the two features separate and say that the scale of Bhūpālī is sa re ga pa dha [·]sa and it is a rāga with

the characteristic of Kalyāṇ ? The case of grouping the five-note scales of rāgas Sāraṅ and Mallār which have little relation with rāga Kāphī under whose scale they are classed is more confusing.

The only way out of this difficulty seems to be the recognition of five-note and six-note scales as independent scales. It may be objected such a procedure will increase the number of scales. In the case of principal rāgas the increase will be about five new scales and for all rāgas will not exceed fifteen and from the stand-point of clarity and intelligibility the price is not excessive.

The attempt to include the aṅga and the scale in the same class brings trouble even in the case of seven-note scales. Kedār, Hamīr, Chāyānaṭ, Gauḍ-sāraṅ and Kāmōd belong properly to the Vilāval scale because tivra ma serves here as an additional note. Bhatkhande places them in the scale of Kalyāṇ because these rāgas have the feature of Kalyāṇ. Had Vilāval scale been known as the scale sa re ga ma pa dha ni sa (or the śuddha scale), there would have been no difficulty of placing these rāgas in the śuddha scale and mentioning that they have the feature of Kalyāṇ.

Rāga and Time of Singing.

To sing a rāga at its stated time and sometimes in particular seasons is a convention in Indian music. Post-Ratnākar writers all refer to this, though there is little unanimity among them as regards the periods. Many rāgas, according to them, may be sung at any time and some hold that after ten in the night there is no restriction.

Goswami says that a seasonal rāga like Vasant, Hindol or Bahār may be sung at any time in the day or night in the spring season and similar is the case of Megh, Mallār, Jayjayanti and Sorat in the rainy season.

In Banerjee's opinion time has no relation to a rāga and the reason of singing rāgas at particular periods is association. Bhairav, he says, is always sung in the morning because Bhairav is associated with the morning.

Banerjee might have added that the subjects of the early morning and evening songs in particular very often include description of nature at those periods. This also helps the association of morning and evening with rāgas like Bhairav, Pūrvī, Śrī etc. But it does not explain the whole situation and there may be some relation between the scale and

man's emotional colouring at the period (See App. VI).

Bhatkhande formulates a theory which binds the scales and periods into a law, a short summary of which follows. The ten parent scales may be narrowed down to three broad classes i.e. (1) Komala re and komala or tivra dha class comprising the scales of Bhairav, Pūrvi and Mārvā (2) Śuddha re, ga, dha class containing Kalyāṇ, Vilāval and Khamāj (3) Komala ga and komala ni class containing Kāphi, Asāvari, Bhairavi, and Toḍi. The first class of Bhairav, Pūrvi and Mārvā is sung at dusk and the rāgas included in them are known as sandhi-prakāśa rāgas or rāgas which show the junction of day and night. Then follows the second class with Kalyāṇ, Vilāval and Khamāj scales. Next proceed the rāgas of the third class included in the scales of Kāphi, Asāvari, Bhairavi and Toḍi. Similar is the progression of rāgas from sunrise to sunset with the provision that śuddha ma is prominent in the day while tivra ma is conspicuous at night. Some rāgas help the easy transition from one scale to another by having an additional note which is a natural note of the next scale and are known as paramela-praveśaka rāgas i.e. rāga Jayjayanti of the Khamāj scale.

which, owing to the presence of the additional note komala ga in it, shows the advent of the Kāphi scale.

The vādī too has something to do with the time. According to Bhatkhānde vādī lies in the fore-part of the scale in the rāgas which are sung from 12 A.M. to 12 P.M. and in the hind-part of the scale from 12 P.M. to 12 A.M.

There may be several objections. Are the musicians unanimous about the periods set apart for singing? If we compare the lists of rāgas with their time of Goswami and Banerjee with that of Bhatkhānde, we find there is a fair amount of agreement about day and night rāgas but the former two writers do not arrange the scales according to a definite order. As regards the progression of the scales according to Bhatkhānde, there are many loose ends. For instance the order of the scales may be fairly followed and realized in the night, but in the day the scales of Kalyāṇ and Khamāj are absent in the morning for no good reason (Hindol, the solitary exception of Kalyāṇ sung in the morning may as well be included in the night rāgas and in the Mārvā scale and Gauḍsāraṅg comes in the afternoon). Again Mālkaus in the scale of Bhairavi is placed after mid-

night whereas Bhairavī in the Bhairavī scale is sung as a morning rāga before mid-day. Toḍī and Mūltānī in the day suffer from the same handicap. About the vādi we have already discussed at length. It may also be remarked that twelve in the day or night does not provide a natural and definite break in the twenty four hours so as to be of special influence or significance.

The principle that clearly emerges from Bhatkhande's theory is nothing but the tendency of rāgas to follow the line of least resistance in the easy transition from scale to scale and it is observed to a certain extent by all musicians. It will be a little abrupt for the audience and the artist to have Mālkaús after Yaman. But there is hardly any necessity for regulating the periods by an elaborate theory. We do not speak against the convention for it does nobody any harm. It may be hoped, however, that heavens will not fall if some one begins the evening with a Darbāri Kānādā, for after all it must be admitted we belong to a scientific age. There may be some relation between the emotion, the scale and the day, but as long as we do not clearly perceive it, let us leave the thing as it is. (See App. VI).

Nature and Development of Rāgas.

Very few writers on Indian Indian music go beyond defining a few technical terms and writing some ālāpas and songs and very little is said about the origin and development of the rāgas.

We have seen in Brhaddeśi that provincial airs or tunes (Sans. dhvani) sytematised are regarded as rāgas and from the statements by Somanātha it may be concluded that such tunes were collected by musicians.

Banerjee says that certain tunes spread like language in a community and are called rāgas. He is in agreement with people who say that rāgas cannot be created for the rāga is a type and not a mere combination of notes. European music, in his opinion, is of different nature for culture of music in Europe does not depend on collected tunes.

Then Banerjee holds the composers responsible for not creating new tunes. The argument that all new compositions will be found to borrow from rāgas, he says, is false, for many tunes in Bengal are free from the influence of rāgas. There was never born a genius among composers, he concludes, who could compose a new tune free from rāgas.

It is difficult to believe with Banerjee that among

so many great musicians of the past nobody had had the requisite genius to compose something different from rāgas. The reason lies elsewhere. Also it is evident that he speaks of tune in a loose way. If the tunes in Bengal spread (which they really do) among the community, according to Banerjee's own definition they would be rāgas. Had he been careful before going against the verdict of musicians, he should have seen that Bengal tunes were not really free from the influence of rāgas. The singers of these tunes often use the names of rāgas in relation to their songs. The fact is that there is hardly any tune in Northern India which is free from slight admixture with either folk or classical melody types. This does not mean, however, that there cannot be any development on new lines. (To be discussed in "Folk-songs and Melody-types" ; See App. V.).

About the development of the rāgas Banerjee remarks, in one place that Dhrupad and Ṭappā are found in rāgas like Bhairavī, Khamāj and Sindhu but Kheyāl types are absent. Elsewhere he says that rāgas like Jhīñjhoti, Pīlu, Imni, Baroañ, Kāphi, are sung in Ṭappā style which is modern and slowly these rāgas will grow into developed rāgas which have Dhrupad and Kheyāl.

It seems from the above statement that Ṭappā is helping some modern rāgas to grow into more developed forms. It also shows that rāgas are being created and developed every day.

Professionals who sometimes try to sing Yaman, Kedār, Kānādā in Ṭappā style do not find favour with Banerjee. He also holds them responsible for not composing Kheyāls in the rāgas Bhairavī, Sindhu, Khamāj etc. in which Ṭappā is sung.

Banerjee should have seen that if rāgas are sung in Ṭappā style before attaining the Kheyāl form, it is reasonable to conclude that all rāgas that are at present sung in Kheyāl style must have passed through the Ṭappā stage.

Goswami points out that very few rāgas are pure and barring a few all the rāgas are the product of intermingling among themselves. He also mentions Ṭapkheyāl as being a mixture of Ṭappā and Kheyāl. Both Goswami and Banerjee observe that Ṭappā and Ṭhunī (which use the same rāgas as Ṭappā but is of a different style) are the most popular forms.

Bhatkhande calls certain rāgas like Prabhāt, Mād, Dhāni, Pilu, Barvā as Dhun (lit. a tune, related to Sanskrit dhvani, a term also used by Willard) and

says that only short compositions exist in these rāgas. There is a very interesting fact recorded about rāga Prabhāt which, Bhatkhande says, is sung in Vaiṣṇava temples in Mahārāṣṭra in the morning. It is curious that the tune with the same name is sung by Vaiṣṇavas in Bengal in the morning in a slightly modified way (See App. V.)

Rhythm.

In Hindustani music certain compositions are accompanied by rhythm while others like ālāpa are conspicuous by the absense of rhythm in its popular sense.

Banerjee is not fond of the absence of rhythm in ālāpa and deplores that Kheyāl and Tappā singers too do not like to keep regular time. Such remarks show how often Hindustani singers leave regular rhythm and improvise in ālāpa style.

Banerjee divides the rhythms into four-beat, three-beat and mixed rhythms according as the particular tāla contains a group of measures of four three or combinations of four, three and two beats. We quote one instance of each from modern Hindustani music.

1	2	3	4	5	6	7	8
dha	dhin	dhin	dhā	dha	dhin	dhin	dha
9	10	11	12	13	14	15	16
dha	tin	tin	ta	ta	dhin	dhin	dha

×				0	
1	2	3	4	5	6
dhin	dhin	dha	dha	thun	na

×		2			0		3			
1	2	3	4	5	6	7	8	9	10	
dhi	na	dhi	dhi	na	ti	na	dhi	dhi	na	

Banerjee tries to find some term for the accent or stress of music in Sanskrit prosody. Sanskrit verse is regulated by quantity but Banerjee thinks.

he can convert the term *yati* (meaning *cæsura* or pause in prosody) to one meaning accent. We have already seen that Śārṅgadeva uses the term *yati* in different sense in music and in Sanskrit prosody too the pause does not occur at regular intervals. Banerjee has little authority for using *yati* in the sense of accent but his raising the problem has some value. One wonders how accent or stress which is so strong and marked in music and Bengali prosody has no counterpart in Sanskrit or Hindi prosody.

(To be treated in 'Rhythm and Music.)

Words and the Melody.

Hindustani musicians endure many unkind remarks for not pronouncing the words in the song clearly and correctly. Banerjee does not believe them when they say that the tunes do not sound sweet and graceful unless they modify the pronunciation.

But the problem is not new. It is as old as the Vedas and if one observes the transformations a vedic hymn undergoes when it is sung (Cf. the variants of hymns in Sāmaveda and the remarks in Sāyaṇa's commentary), he will have to think seriously before accusing masicians of wilful and negligent changing of words.

(To be treated in 'Words and the Melody'. Some account of changes of the vowels and in the structure of the words may be seen in the writer's article in *Sangeeta*, March, 1931.)

Emotion and Music

The notes and the rāgas are associated with particular emotions by Sanskrit writers. Man is moved by music, for no art stirs the emotions so deeply as music does. But how far can we be definitely aware of particular emotions in particular musical situations ?

Goswami says that the Sanskrit writers do not always agree regarding the emotions to be related to each rāga, yet he assigns the pathetic, the heroic, the erotic and the comic emotions to several rāgas.

This statement goes against the subject of compositions. For the songs in the rāgas mentioned in relation to pathetic emotion may contain heroic or erotic subjects as well. The fact is that a rāga may use any subject suitable for treatment in music and the various types of songs existing in each rāga prove this.

Bhatkhande divides the emotional enjoyments into three classes (i. e., the erotic, heroic and pathe-

tic) corresponding to his three groups of scales (Paddhati vol. 4, p. 9). But he is open to the same criticism as Goswami. Moreover it is difficult to find authority for selecting three emotional enjoyments as representing the eight or nine emotional enjoyments. For instance, it is difficult to derive the comic and loathsome emotional enjoyments from the above three classes (See App. VI).

Chapter VI

State and status of Classical Music.

Not only the specialist, but the layman also has his problems about classical music. It is often reflected in popular criticism, a few specimens of which are given below.

“India has as its heritage an undoubtedly great and beautiful art, well worth preserving and cultivating....The Pandits, however tell us that Indian music is now melodically perfect, both in form and development, and that all its resources have been exploited, all its mysteries explored (Listener, Official Organ of All-India Radio, 22nd Nov, 36).

“Most listeners are thoroughly bored by classical music. In fact, it may be questioned whether classical music in India is not a moribund art (Listener, Jan. 7, 37)”.

The very idea is fallacious for art as an expression of the feelings of an age is always full of life and no living art can be moribund. I do not know if it is possible to keep a thing going in art after

it has become lifeless and static. Rāgas are spontaneously created every day in our midst and there is still room for evolution of new forms.

“Many people hold that Indian music can be developed on western lines without in any way rendering it less Indian. The statement usually made that western music is dependent on harmony is surely untrue. Harmony is used merely to enrich a melodious utterance. No musical structure can stand without melody, and harmony as usually understood by the bulk of Indians (i. e., as a series of pleasing chords) cannot be called music by any stretch of imagination. If Indian music is developed on western lines, it is toward counter point (horizontal harmony) that one must look for enrichment” (Listener, Nov. 22nd, 36).

Western conception of melody is not the same as the eastern. In European melody notes may progress singly but the relation is harmonic, and for that reason they are confined to the major and minor scales. Oriental melody is of different nature though, I think, it is possible for Indian melody to assimilate a little of western melody horizontally in its own way without introducing harmony.

“The theory of Indian music must also be stan-

dardised. It will be a slow process, but the waiting will be worth while. Such a standardisation will result in the banishment of all fanciful ideas that have been embodied in our present 'system', if it can be called that". (Ibid).

This is a correct estimate of the state of affairs in theoretical Hindustani music.

Many people are under an illusion that all music should be intelligible to every one having the capacity for hearing sounds. The ear, they hold, does not require training and preparation to comprehend a complex and developed music like the classical Hindustani music. It is strange they do not claim the same privilege with respect to higher stages of knowledge in other subjects like mathematics, science or arts. Every body with a knowledge of the English alphabet does not understand and appreciate Shakespeare, Shelly or Browning. What musicians acquire after years of experiment and industry must needs be a little complicated.

But the public is not wholly to blame. The above extracts reveal a curiosity and a keen desire to understand the intricacies of Indian music. But there is no book which treats Indian music in a popular style and the public knows next to nothing about

the nature and principles of its music. The professional musician knows hardly anything better than applying certain principles traditionally without a clear notion of their significance. Music treatises in general consist of definitions of certain code-words with big gaps which prevent these fragments from being unified and co-ordinated into a single whole. They never emerge out of the hot-house atmosphere of specialised studies and have very little to do with the main currents of cultural life in India.

There are at present several ways of popularising classical music one of the principal being the medium of All-India Conferences held in several towns every year in Northern India. These usually award medals and certificates to competitors and invite professional and amateur musicians for demonstration. Sometimes debates are held on important topics of music but this feature is slowly receding into the background. Owing to the dearth of good institutions and the disadvantages of musicians in arranging their own concerts, the conferences are of some service to the community. But one of the most harmful things done by organisers, perhaps unwittingly, is the encouragement of the use of harmonium in classical music. Barring a handful of musicians, the public

and the musicians are getting harmonium-minded and the delicate sense of tones which is an invaluable asset to oriental music is slowly getting dulled. It may be taken for a truism that he who sings with harmonium sings something very different from classical music. Europeans who use key-board instruments do not sing in unison with them. Before using quarter-tones Indian musicians should be able to manage the tones properly and confidently. The following is an impression of a foreign critic: "Hence the serious menace to Indian music of the harmonium, which has penetrated already to the remotest parts of India. It dominates the theatre, and desolates the hearth ; and before long it will, if it does not already, desecrate the temple. Besides its deadening effect on a living art, it falsifies it by being out of tune with itself" (*Music of Hindostan* by F. Strangways, p. 162).

There is always present an urge in the Indian writers to connect the present to the past and to base modern music on the findings from the old texts. This is necessary for music is the product of a process of artistic development whose main stages should be traced to their origin. Used judiciously it contributes to the enrichment of our art and life and

even helps to unloose tangles in present theory. But it is dangerous when it becomes the sole preoccupation and is confined to quoting irrelevant texts in support of fantastic and impossible theories. Hindustani music may be traditional but it has never been stationary. New problems arise which require a fresh orientation of outlook. New terms have to be coined and a different grammar is necessary. Let the past and the present join hands in evolving a complete basis of Indian music. Only then will it be possible for us to remove the just grievances of a writer like Mr. Fox Strangways who says "We spoke of Indian musical history as a jungle. So it is, and so it will be until the thinking minds of that country attack it seriously and critically, and cease to waste time over pious beliefs and mathematical tricks, to repeat ślokas, often out of their proper connection, instead of to examine problems" ("The Gāndhāra Grāma", JRAS Oct. 1935).

The writers reviewed in this book worked as private scholars mostly for the love of the thing and received little outside help. Banerjee wrote in the introduction to his book (vol. 2) in 1886. "Public in Bengal have not yet learnt to care for books on music. . . . But one should not ask much in the

initial stages of progress. Books of this nature will teach the public to hold the study of musical science in respect and to have confidence in learning music. I have taken pains with that end in view and not to gain riches or fames". In spite of this handicap, we have seen, they contributed materially to the systematic and scientific study of music. But a self-sacrificing spirit is not enough. Research has made great progress since the eighties and the technique is not the same. Research in music now means apparatus for phonetic investigations and psychological experiments and facilities for comparing manuscripts of standard texts from libraries of India and abroad and editing them with English translation and short commentaries. It also presumes the existence of an up-to-date library within easy reach containing books not only on music but a few authoritative texts on psychology, sound, aesthetics, language, phonetics, anthropology, philosophy, histories of art, literary criticism and biology. This is beyond the resources of musicians and music scholars till the state and the public come to their help and place material at their disposal. The place that music occupies in some University curriculums is insignificant and apologetic. It provides mostly

for practical and theoretical examinations upto the Matriculation standard. It is not thought fit to be a subject worthy of serious study and research. All this is rather depressing when one compares the status of Indian music in Indian Universities to that of European music in British and other European Universities.

APPENDICES.

APPENDIX I.

Svaras and Śrutis.

NOTES AND QUARTER-TONES

Before one proceeds with the significance of śrutis, it is better to have some idea about their position with respect to notes. Śārṅgadeva is responsible for some confusion to post-Ratnākar writers. In a few places he repeats what he finds in earlier writers. But some of the mistakes and misrepresentations are his own contribution.

His placing of the seven notes on the fourth, seventh, ninth, thirteenth, seventeenth, twentieth and the twenty-second śrutis has been followed by all writers on Indian music. This distribution of śrutis by Śārṅgadeva is, to say the least, is peculiar and unnatural for the ṣaḍja-grāma begins not from sa but from ni of the preceding octave, so that the scale is denoted by ṇi sa ri ga ma pa dha ni and not by sa ri ga ma pa dha ni sa. Somanātha though numbering the śrutis as Śārṅgadeva is probably the only writer who sees the absurdity of the thing and ex-

tends the scale to the octave. He comments that unless he goes upto tāra-ṣaḍja it is neither possible to know if the śrutis are placed correctly nor it is possible to include the vikṛta notes between ni and sa (kākalī and kaisika ni) of the ṣaḍja-grāma. The argument is sound and logical and we shall see that he is supported by pre-Ratnākar writers.

Bharata says, "There are two grāmas, ṣaḍja and madhyama and resting on them are twenty-two śrutis. Three, two, four, four, three, two, four are the example of śrutis in the grāma named ṣaḍja" (See App. IX). Dattila living at about the same time as Bharata explains more lucidly "There is no doubt ṛṣabha is the third up from the note which is taken as ṣaḍja in ṣaḍja-grāma. Gāndhāra is the second from it ; madhyama is fourth from that (gāndhāra) ; pañchama is the same (fourth) from madhyama ; dhaivata is third from it ; niṣāda is second from it (dhaivata) ; ṣaḍja is fourth from it (niṣāda)" (See App. IX). This shows that the scale begins from sa and is represented in the following way :—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
sa	re	ga					ma					pa			dha	ni			sa		

Śārṅgadeva's error is due to the fact that Bharata speaks of ṣaḍja as a four-śruti note. Bharata does

not mean that these four śrutis are to be placed in the beginning. He mentions ṣaḍja first because it is the first note of the scale. Lochana and Ahobala seem to follow this interpretation. This is an important point for there is hardly any writer, past or present, on Indian music who does not place sa on the fourth śruti of the ancient scale.

Śrutis have been used both as notes and intervals and this double meaning causes some confusion. Let us treat the two aspects separately though, as we shall see, it will be impossible to keep them separate when we discuss śrutis as intervals.

We have already seen that modern musicians use śrutis usually for additional notes in the octave. It is not possible to get much support for this view from Sanskrit writers who are not particularly lucid on this point. Dattila says that the śrutis are "species of sound capable of being heard, some of which are taken, sung and cared for in all songs". It refers only to the śrutis which are used as notes and the number of notes is principally seven according to him. Rāmāmātya says that for vocal musicians there are twenty scales and for viṇā there are two alternatives. He says if antara ga and kākalinī are regarded different from chyuta ma and chyuta

sa, there are indeed twenty scales, but if they represent the same notes as chyuta ma and chyuta sa there are fifteen scales. From this it seems that vocalists used notes of slightly different pitches in particular rāgas. Ahobala says "All śrutis attain the status of svaras when used in particular rāgas. It is agreed that they should receive the name of svaras when they are the cause of rāgas". But he uses only twelve notes in the description of rāgas. Again Śrinivāsa (18th century) recommends the use of only twelve śrutis which indicate the position of the twelve notes. The remaining śrutis, in his opinion, are not used in the scales which produce rāgas. One may collect contradictory statements from Sanskrit writers and consequently one may conclude that as in the present there was little agreement in the past. Possibly the authors were not very conscious of the problem.

The second meaning of śruti is an interval and this has come to assume great importance in modern criticism (Cf. Strangways' article 'Gāndhāra-Grāma', JRAS Oct. 1935). It is better to know what the Sanskrit writers understood by the term interval. Physically, interval expresses numerically the relationship between the pitches of two

notes and is measured by the ratio between their vibration-numbers. But vibration-numbers of notes were not known to Sanskrit writers who expressed the distance between two notes by imagining certain other notes lying between them. It is evident that this description of interval is spatial and visual (with reference to *viṇā*) and signifies 'width' or 'distance'. (This manner of expression is still useful, for occasionally intervals are represented visually or in a diagram in proportion to the logarithms of their ratios). Here it may also be stated that no term for interval is used by the writers who only mention the number of intervening notes.

It seems from Śārṅgadeva's statement that śrutis were the first to take the field in music and the notes were later arrivals. He says that the seven notes *ṣaḍja*, *ṛṣabha*, *gāndhāra*, *madhyama*, *pañchama*, *dhai-vata* and *niṣāda* come from śrutis. This means that the twenty-two śrutis were first found out and then out of these the seven notes were selected. This could only happen if the śrutis had some other independent use and function in music apart from helping the selection of the seven notes. But *jātis* or *rāgas* are never described in terms of śrutis. Śārṅgadeva gets perplexed. He says that certain śrutis may

indeed be identified with notes but the rest are difficult to account for. "A śruti can be specified as the fourth, third or second", he says, "only with reference to the preceeding śrutis" (See App. IX). This argument clearly shows that he cannot satisfactorily dispose of the śrutis that are not used as notes except by treating them as lying between the notes themselves. That is he has to admit by a round-about way that the śrutis have meaning only with reference to notes. Post-Ratnākar writers usually repeat Śārngadeva's argument.

We may hence conclude that śrutis had no independent existence apart from showing the intervals between notes and as such it is not wrong to assume that they were brought into being only for the sake of notes. Later on it will be shown that they appeared when only seven notes with occasional use of two extra notes were used in the octave. People who use generally seven notes in the octave are not expected to begin music with twenty-two quarter-tones. The śrutis mean intervals but they must be understood in their Indian setting.

Can we find out the pitches of the seven notes with the help of these intervals ? . Bharata says, "In the madhyama-grāma pañchama should be lowered

by one śruti. The amount of difference in flattening or sharpening caused by lowering or raising the pañchama by one śruti is the measure of a śruti. I shall explain their examples. Let two viṇās with similar wires, wooden frame for playing and mūrchanās be tuned in the śaḍja-grāma. Change one of them to madhyama-grāma by lowering the pañchama by one śruti. Make it (the madhyama-grāma viṇā) a śaḍja-grāma viṇā by keeping the pañchama intact (that is, by treating the altered pañchama as the śaḍja-grāma pañchama which results in the lowering of all the other notes by one śruti). In this way (the changed) viṇā is lowered by one śruti. By repeating the same operation gāndhāra and niṣāda of this viṇā will coincide with ṛṣabha and dhaivata of the (unchanged) viṇā" (See App. IX). This shows to all intents and purposes that the śrutis or the intervals are equal. But if we look at the matter a little closely, we shall see that this equality is more apparent than real. In the beginning Bharata lowers the pañchama by one śruti. The question that naturally comes to mind is the way it was done. Can anybody with precision lower the pañchama by one śruti? Leaving the case of ancient musicians, would it be judicious on the part of any modern musician

to trust his ears to such an extent ? Instead of describing how he divides the octave into twenty-two equal intervals, Bharata chooses a particular śruti or interval in an arbitrary and uncertain manner and says that other intervals are equal to this interval. Śārṅgadeva presents another novel method. He says that 'twenty two wires are to be tuned in such a way that the note of each should be slightly higher than that of the preceding note so that no other note may be heard between the two'. But there is likely to be difference of opinion among the hearers many of whom may even fail to distinguish all the twenty two quartertones ! It is not my purpose to find fault with Bharata or Śārṅgadeva who only expressed as best as they could in the manner of their day but when people interpret the notes of these writers by standardised pitches the authors come in for criticism for no fault of their own. There is no evidence to show that these writers had exact mathematics in view when they wrote this. The equality could not be demonstrated either with the voice or instruments and so was useless for finding the exact pitch-number of notes.

But admitting that the examples were at best rough calculations, we cannot deny that Bharata.

means the intervals to be approximately equal. There is no harm if the intervals are calculated assuming them to be equal. Interpreted mathematically the statement means that the octave was divided into twenty-two equal intervals, the interval between any two notes having the ratio $1 : \sqrt[22]{2}$. Working out with the help of logarithms we get

$$\text{Log } 2 = \cdot 30103$$

$$\text{Log } \sqrt[22]{2} = \frac{1}{22} (\cdot 30103) = \cdot 01368$$

\therefore the required root is the number whose log is

$$\cdot 01318 = 1.0320 \text{ (to five places of decimals)}$$

The intervals can be arranged thus

$$\text{sa} : \text{ri} = 1 : (1.0320)^{\frac{1}{2}} = 1 : 1.0991$$

$$\text{sa} : \text{ga} = 1 : (1.0320)^{\frac{1}{3}} = 1 : 1.1706$$

$$\text{sa} : \text{ma} = 1 : (1.0320)^{\frac{1}{4}} = 1 : 1.3278$$

$$\text{sa} : \text{pa} = 1 : (1.0320)^{\frac{1}{5}} = 1 : 1.5060$$

$$\text{sa} : \text{dha} = 1 : (1.0320)^{\frac{1}{6}} = 1 : 1.6553$$

$$\text{sa} : \text{ni} = 1 : (1.0320)^{\frac{1}{7}} = 1 : 1.7630$$

Taking middle c's vibration to be 264

$$\text{we get ri} = 288.5$$

$$\text{ga} = 309.03$$

$$\text{ma} = 350.5$$

$$\text{pa} = 397.5$$

$$\text{dha} = 436.1$$

$$\text{ni} = 465.4$$

(The results are almost the same as those of Phadke in *Sangeeta* of September 1933. Phadke begins the scale from *ni* of the low octave but during the calculations arranges in the above way).

This is a curious scale the note *ri* having 288·5 vibrations is neither the *komala ri* (285·5) or *śuddha ri* (297) of *Ahobala*. If we take the southern scale to be a tempered scale following *Rāmāmātya* and *Somanātha*, the southern *śuddha ri* (approx. Hind. *komala ri*) and *śuddha ga* (approx. Hind. *śuddha ri*) of 279.7 and 296.3 vibrations respectively, we find *Bharata's śuddha ri* calculated mathematically is not found either in the northern and the southern systems. We shall meet the scale of *Bharata* when we come to discuss the *śuddha* scales of the south and the north in the next Appendix.

APPENDIX II

Svaras and the Śuddha Scale.

(NOTES AND SCALES)

In the Nāṭya-śāstra there are two scales namely the ṣaḍja-grāma and the madhyama-grāma. The mūrchanās serve as additional scales and to them the jātis are referred.

Let us discuss the ṣaḍja-grāma first. If we take the notes of the first mūrchanā beginning from sa in ṣaḍja-grāma, this will give a series of notes with definite intervals. But other mūrchanās beginning with ni, dha, pa, ma, ga, ri will bring in other intervals with respect to sa ; that is, notes different from the notes of the sa mūrchanā of ṣaḍja-grāma will be brought into existence by other mūrchanās working with the remaining notes as tonics. So there will be vikṛtas in relation to the śuddha notes of the sa mūrchanā. But this never happened in the days of Bharata for though different scales were used, they were never compared in the same octave. Naturally the problem of śuddha and vikṛta did not arise at all. Such a method of bringing all the scales to the

same octave and comparing and collecting the notes, was first used by the post-Ratnākar writers, Śārṅga-deva providing a curious transition.

But before we deal with Śārṅgadeva, Bharata's scales need some examination. It seems that in addition to the seven notes used in the scales, occasionally additional notes are used. Two such notes are called antara ga and kākali ni and Bharata calls them sādihāraṇa or common notes and defines sādihāraṇa notes as those lying between two notes. He also mentions that "antara svara is always used in the ascent and it should rarely be taken but never in the descent". This is very similar to what is happening, for instance, in the scale of the rāga Kāphi. Ahobala seems to be the only other writer who uses the term sādihāraṇa in a similar sense.

Then there is the madhyama-grāma. About the ma-grāma I think Bharata himself failed to grasp the proper significance. There was no earthly use in bringing a scale into existence in which one note differed by one śruti from the corresponding note of the sa-grāma and which differed so little from the ma-mūrchhanṣ of sa-grāma as to be musically altogether unimportant. The fact is that it is a Vedic scale incorporated in the Hindu grammar of music

about 500 B. C. It is not possible to discuss it without bringing in details of Vedic music which is beyond the scope of the present treatise (To be treated in "A Short History of Hindustani Music"). It may, however, be stated here that there is sufficient internal evidence to show that this was not a seven-note scale like *ṣaḍja-grāma* but the tonic was in the middle. The terms *ṣaḍja-sādhāraṇa* and *madhyama-sādhāraṇa* were used in connection with the comparison of the two scales. It has a curious resemblance with the Doric scale of the Greeks in which the tone of the middle string served as the tonic (cf. 'Sensations of Tones' by Helmholtz p. 242).

Śārṅgadeva uses seven *śuddha* and twelve *vikṛta*s in the octave but we shall see that he means the same notes used by Bharata. He says, "Ṣaḍja is *vikṛta* or changed in two ways by two *śrūtis*. It becomes *chryta* (changed from its place) in (*ṣaḍja*) *sādhāraṇa* and *achryta* (unchanged from its place) when *niṣāda* is *kākalī*. *Rṣabha* is *vikṛta* when it receives four *śrūtis* by taking the (final) *śruti* of *ṣaḍja* in (*ṣaḍja*) *sādhāraṇa*. *Gāndhāra* has two forms according to *Niḥsaṅka* (Śārṅgadeva) namely by becoming a three-*śruti* note in (*madhyama*) *sādhāraṇa* and a four-*śruti* note in the condition of *antara*. *Madhya-*

ma has two forms owing to gāndhāra's becoming an antara note and to (madhyama) sādharāṇa. Pañchama has two forms namely its three-śruti form in madhyama-grāma and its becoming the four-śruti note kaiśika after getting one śruti from madhyama (in madhyama sādharāṇa). Dhaivata becomes changed in madhyama-grāma by being a four-śruti note. Niṣāda has two vikṛtas, by becoming three-śruti note in kaiśika (in ṣaḍja sādharāṇa) and a four-śruti note in kākali" (See App. IX). A reference to chart in App. VII will show that five of these twelve vikṛtas namely achyuta-ṣaḍja, vikṛta-ṛṣabha, achyuta-madhyama, tri-śruti pañchama and vikṛta-dhaivata are the same as śuddha ṣaḍja, śuddha ṛṣabha, śuddha madhyama, kaiśika pañchama and śuddha dhaivata. Śārṅgadeva's explanation of these vikṛtas is rather curious. According to him if kākali-niṣāda gets two śrutis from the śrutis of ṣaḍja, ṣaḍja becomes a vikṛta even when remaining in its own place. If this logic is strictly adhered to, we would have not only ṣaḍja but all notes of the scale becoming vikṛtas even when staying at their own places ! The uselessness of these notes was pointed out by both Rāmāmātya and Somanātha. Of the remaining seven notes chyuta ṣaḍja, sādharāṇa gāndhāra

chyuta madhyama, kaiśika pañchama, kaiśika niṣāda are used only in relation to modifications due to ṣaḍja-sādhāraṇa and madhyama-sādhāraṇa and as such have nothing to do with notes used in jātis and rāgas of Saṅgita-ratnākara. So we get only antara-gāndhāra and kākali-niṣāda in addition to seven primary notes of the scale. This is supported by the fact that Śārṅgadeva has used only kākali-niṣāda and antara-gāndhāra of the twelve vikṛtas in his description of jātis and rāgas. A reference to his chapter on instrument will further establish this. In his description of Alāpini Viṇā, he does not use more than seven notes of the scale. This is also clear from the description of the three varieties of Kinnari Viṇā. It may be stated here that Śārṅgadeva's practical knowledge of music seems to be rather hazy and of doubtful quality as his description of the octaves is almost all wrong (Bhandarkar is evidently mistaken in thinking that a wire divided in the middle sounds madhyama. The octave will be sounded by the process; for instance Ahobala first divides in the wire in the middle and gets tāra-ṣaḍja. Bhandarkar's interpretation of the big Kinnari Viṇā is defective in this respect. See 'Sangeeta' Sept. 30). All the post-Ratnākara writers are

very careful and accurate in their description of *viṇās* with reference to notes.

We thus see that neither from the position of *śrūtis* nor from a description of *viṇā*, we get any clear idea about the pitch of the notes actually used. But Śārṅgadeva is the first to use the terms *śuddha* and *vikṛta* in relation to notes.

We now come to the *śuddha* scale of northern and southern writers. The first thing that strikes the reader is that neither the *Mukhārī* (sa re re ma pa dha dha sa) of the south nor the *Bhairavī* (sa re ga ma pa dha ni sa) of the north was the most popular scale of the day. *Mālavagaṇḍa* (sa re ga ma pa dha ni sa), *Śrīrāga* (sa re ga ma pa dha ni sa) and *Śaraṅganāṭa* (sa re ga ma pa dha ni sa) seem to be more popular in the south (Cf. *Rāmāmātya*, *Somanātha* or *Puṇḍarika*) and *Gaurī* (sa re ga ma pa dha ni sa) *Karṇāṭa* (sa re ga ma pa dha ni sa) and *Kedāra* (sa re ga ma pa dha ni sa) seem to be more or equally popular in the north (Cf. *Lochana* and *Ahobala*). Again in the north the *Vilāvala* scale (sa re ga ma pa dha ni sa) is of long honoured tradition, for instance, among the musicians who trace their lineage to the musician Tansen. This popular scale

is the standard scale of reference and the first lessons in grammar begin with the Vilāvala scale. It is strange that no popular scale was chosen to represent the śuddha scale either in the south or in the north. What is the reason ? It seems that the post-Ratnākar writers did this as a sort of compromise between the old scale regulated by śrutis and sanctioned in Nāṭya-śāstra and Saṅgita-ratnākara and some similar scale current in their day. In this adjustment after comparing distances between frets on the viṇā Rāmāmātya hit upon the Mukhārī as the śuddha scale and Lochana selected the Bhairavi (modern Kāphi) of the north.

There is another interesting fact that the Muhammadan musicians never use the term śuddha in relation to the notes re, ga, dha, ni which they call tivra and they arrange their śrutis so that their are four instead of three sruties between sa and re (Cf. Willard). If we arrange the twenty-two śrutis in the two scales of Bharata and modern Vilāval scale, we get the following :—

(Bharata)

sa	re	ga		ma		pa		dha		ni		sa									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
sa		re			ga		ma			pa							dha			ni	sa

(modern)

(modern)

This shows that re, ga, dha, ni become sharpened or *tivra* and this scale too seems to have been compared with the old *śuddha* scale.

It is evident that the ancient arrangement of *śrutis* is at the root of all this confusion and it is unfortunate that writers did not break away from the past though they could not adjust it conveniently and comfortably with the scales current in their day.

APPENDIX III

Scales and Classification.

The difficulty of classifying rāgas when they have more than seven or less than seven notes has already been alluded to. The presence of antara ga and kākali ni in the days of Bharata is a proof that this problem was present, though not in an acute form for in the mūrchhanās used for classification they are omitted. Dattila says the antara and kākali notes are not to be treated as notes proper as they cannot be used as amśas. This is an instance that more than seven notes were used in the jātis. It seems nothing definite controlled the classification of śāḍava and auḍava rāgas for they could be produced by omitting any note in a suitable mūrchhanā.

In the post-Ratnākar treatises śāḍava rāgas are classified under any suitable seven-note scale. No rāga seems to have troubled the writers with more than seven notes. One thing is rather curious. All parent scales under which rāgas are classified consist of seven notes in regular order though actually some of the prime notes are absent. A scale like Śāraṅga

which has notes ¹sa ri ma ma pa ni ni sa is expressed by Lochana in terms of the seven notes with the

help of alternative notes of the scale. This is the principal reason for the existence of alternative names not only of flats and sharps but of śuddha notes as well. Vyaṅkatamakhi (17th cent.) who started promisingly with twelve notes in the octave had to succumb to the use of alternative notes for the same reason. Bhatkhande who does not use alternative names and whose ten scales are all real seven-note scales needlessly indentifies them with ten of the seventy two possible scales of Vyaṅkatamakhi. If mathematical counting of possible seven-note scales is at all necessary, in the Hindustani system thirty-two scales will suffice with the help of simple arithmetic.*

We see this problem was not very important till

* I wrote this to Panditji in 1932 and he replied, "We simply accept his mathematical calculation because we also base our system on the same 12 notes and then select only 10 well-known Thatas for the classification of our Ragas.... The old writers were fond of giving exhaustive lists. By mentioning their process we simply keep our contact with the old Shastras. It serves a good Shastric background परंपरा for our new रचन. I quite agree that the 32 scales you point out would be quite enough for modern music". I may state here that I learnt the first rudiments of theory at Panditji's feet.

modern times. We have already discussed the classification of five-note and six-note rāgas and have suggested treating their scales as independent scales. We are concerned here with rāgas using more than seven notes. Banerjee points out that by treating certain notes as tonics he can supply the reason for the presence of additional notes. Bhatkhande often treats them as vivādi. It is better to adopt Banerjee's method with some modification. Banerjee's idea is that only the scale of c major may appear occasionally in addition to the regular scale. We would suggest that any scale or part of the scale may be used jointly with secondary importance, the regular scale being of primary importance. Thus existence of śuddha ma in Pūrvi, Vasant and Lalit may be explained by the use of the scale of Bhairav upto ma. Here only a portion of Bhairav's scale is used just as in Khamāj part of the major scale is used by Banerjee. With the assumption of the use of additional scales we can explain all additional notes. This will not, however, account for notes used chromatically (progressing by semitones) in scales and there is possibility of such progressions being more common in future in our music.

APPENDIX IV

Vādi and Amśa

(ESSENTIAL NOTES)

Samvādi, anuvādi and vivādi are used by Bharata primarily in the sense of consonance. Vādi is a note similar to amśa. In Bṛhaddeśi we read about regulations concerning the interchange of certain notes as samvādi, anuvādi and vivādi in a jāti or rāga and it is difficult to guess the meaning of replacing one note by another note as samvādi, anuvādi and vivādi. It seems their meaning was something very different from the sense in which they are used at present for when Maṭaṅga comes to describe the rāgas he never mentions any note as being used in the sense of vādi, samvādi, anuvādi and vivādi and this is the procedure of all Sanskrit writers. Though almost all of them mention the above terms as the king, minister, follower and enemy of a rāga, no examples are ever given in the description of jātis or rāgas.

But important notes in the rāga are always expressed by amśas which may be one or several in number. The Hindustani musicians use a similar term called mukām or a resting place of notes in a

rāga. As both Sanskrit and Hindustani terms are available for one of the most important functions of notes in a rāga, I have suggested in chap. V the use of amśa or mukām in the place of vādi and samivādi in modern nomenclature.

These centres in the scale serve as secondary tonics in addition to ṣaḍja in a rāga. Thus a rāga using the seven notes of the śuddha scale may occasionally stop at other notes of the scale and impart the additional richness of the scales of Kāphi, Bhairavi, Yaman, Khamāj etc. in a subdued way.

APPENDIX V

Rāga—its nature and origin

The rāga is not an exotic growth on the Indian soil. As a complex type of music, it should have been preceded by simpler forms ; but the only simpler kinds are the common folk-songs which do not seem to observe any law, nor seem to be guided by any principles. The suspicion that the two may be related in some way naturally arises in the mind. At first sight, the rāga and the folk-song seem totally different in their structure : the one seems regulated, the other built on haphazard and whimsical lines.

Songs do not seem to be closely related to one another in folk-music, but the investigator need not be baffled by this apparent lack of types. We soon see that folk-tunes are not so chaotic as they seem : they too could be grouped. What goes by the name of a popular tune in folk-music is a tune which one singer catches from another, and, making some slight alternations, perhaps composes a second song in it. The tune is similar, though the songs may not be identical. Tunes, at this stage are known as dhuns. They are of all grades. Some of them consist of a few phrases repeated monotonously and extend only

to part of the octave, others are more developed and show more design and system.

The degree of accommodation varies with the tunes. The musician selects those which appear artistic and to have the greatest elasticity, that is, which allow him to create and improvise. When a tune of this nature is found, several musicians co-operate and join in the production. But this polishing up is spread over long stretches of time and a tune takes at least half a century to attain a state of tolerable maturity. This prevents one from observing a rāga in the making whose stages of development often extend to several centuries. The fact is that the whole process is so unconscious that it is difficult to bring it under a clear perspective.

In the first stage the musician must keep close to folk-music and necessarily retains some characteristic folk-flavour. This is brought about by Tappā and by the modern Thumri styles of composition which are the living links between folk and art music.* At first the essence of folk-music is not much disturbed and this accounts for the popu-

* "The city life in its greatest and best achievements needs and incorporates the country art in its original and pre-urban forms"—Sorokin, *Rural-Urban Sociology* (Chap. *Esthetic Culture*).

larity of these types which sound familiar to the general mass. But experimentation and improvisations soon predominate and changes are so radical that after some time the folk will scarcely recognise their own elements in the musician's rendering of the songs. Though originating from folk-songs, the tunes are diverted into separate channels and with the wealth of musical phrases systematically developed bring rāgas into existence. For instance it is possible, if one watches carefully, to find traces of many rāgas like Jayjayantī, Deśkār, Kāliṅga, Paraj, Gaurī, Sohini (śuddha ma variety), Gaṇḍamallār (Khamāj scale), Sāraṅg etc., in folk-music.

It may be argued the other way. People may say that the folk might have borrowed these tunes from musicians. There is hardly any possibility of the selection of tunes by the simple folk from the complex rāgas. Had that been the case all the current rāgas would have been represented in folk-music which on the contrary consists of a few tunes of a simple nature. But lighter types of songs similar and allied to developed folk-songs by urban composers often percolate through the mass. This process of giving back cheap urban music has been intensified recently by the introduction of motor

transport, gramophone and broadcasting to rural areas and it may be feared that genuine folk-music will be extinct within the next twenty or thirty years. There should be an immediate and all-India move to collect these folk-tunes before they die out.

But a rāga often is not born of a single tune and in the stages of its growth it assimilates other allied tunes resulting in enrichment and variety. Also a rāga may produce other rāgas out of it like Mālkaús, Puriyā, or Toḍi which have not the least resemblance to any existing folk-tunes. The rāga is not a folk-song for its complex form takes at least a dozen years for appreciation by one gifted musically. But all rāgas have their remote origin to folk-songs in one form or other. Folk-songs form the nuclei of rāgas and supply themes on which the complicated super-structure of rāga is built.*

This is the reason why rāgas are never the creation of one man. They are built by several composers jointly on tunes that are current throughout Hindustan and almost all tunes will be found

* Europeans composers, like Glinka and Rimsky-Korsakov of the Russian School, often make use of folk-songs as the thematic material of their compositions and successfully cultivate a melodic style based on them with suitable harmonic treatment. See Cecil Gray. *The History of Music* p. 242.

represented in all the provinces modified by local style and taste. This explains why rāgas have the same general likeness all over Hindustan as sung by musicians of different provinces. Not that the musician is not a creator. He too creates owing to his superior esthetic equipment but he usually contributes on a common basis. It is not created, as some may imagine, by introducing a note here and omitting a note there in the scales. Such artificial attempts always fail.

In the first stage, along with Ṭhumrī or Ṭappā, Dhrupad songs begin to be composed. (Modern rāgas like Khamāj, Bhairavī, Kāphi, Gārā, Pīlu, Jhīñhoti and Tilak-Kāmod adapt themselves to Dhrupad or Ṭhumrī or Ṭappā but not to Kheyāl.) This is done on classical lines and the Dhrupads store, as it were, as many characteristic songs as possible. Ṭhumrī is always in an experimental and unstable state. It is not sure of itself and is uncertain in its moods. This uncertainty adds charm and freshness to Ṭhumrī but prevents it from attaining depth and precision of form. Dhrupad creates a number of compositions with simple design and form free from all external ornaments and flourishes. These songs supply the basis of ālāpa or develop-

ment and soon Kheyal steps in on this foundation with a full-fledged rāga with songs artistically composed and exploiting all the resources of voice.

Why should the rāga be called a type? The songs in a rāga are similar but not exactly alike. It means they contain a common characteristic and each individual song contains something over and above it. The ascent and descent of a rāga constitute the common characteristic. When we say that the progression of each song will be guided by this, we do not mean that each will go up and come down strictly following the given direction. There may be many ways of doing this but all will conform more or less to the pattern of the given ascent and descent. Had this not been the case, the rāga could never have been composed. Each song brings its own contribution and enriches the rāga. Gradually as these contributions accumulate, the ālāpa is born. So ālāpa comes in when there is a considerable number of songs in the rāga.

The scope of the rāga depends on artistically composed songs slightly different from one another. Well-known or prasiddha rāgas have always at their disposal a large number of songs while the reverse is the case with less known or aprasiddha rāgas.

When a class is formed, we “recognise the unity of essential attributes in a multiplicity of individual instances” (Wolf. Essentials of Scientific Method. p. 30). And a type is an example of a class eminently possessing the properties of the class. A rāga is a type because it possesses the essential attributes of a class of songs. Let us attempt a visual analogy (a rāga is also used in the sense of colour in Sanskrit.)

Let us compare the rāga to a species of flower, say the rose, taking each individual song for a particular variety of the rose. One variety of the rose may not resemble another in colour or smell, but certain features in it stamp it indubitably as a rose. Let us arrange the different varieties of roses (as far as possible) in such a manner that one specimen shades off into another. If a sequence of pictures of the roses is now photographed on a film and is projected on a screen with the help of a cinematograph, very nearly a visual rāga of the rose will result. A certain common feature persists on the screen in the case of the rose and on the ear in the case of the rāga.

(To be treated in detail in “Folk-songs and Melody-types”).

APPENDIX VI

Rāgas and Emotion.

Does emotion mean the same thing in music and literature ? Often it happens a musician is moved to tears in the midst of singing or playing and he has to restrain himself with great effort. It is not because the music is depressing and all beautiful music is not necessarily sad. Emotional states in music are indefinite and fleeting. It is hardly possible to provide music with a vocabulary for vocabulary means language and language is based on analysis. The emotional appeal of music is vague and not easily analysed.

But musical experience is not isolated and it bears some intelligible relation to literary experience (Cf. Richards. Principles of Literary Criticism, Chap. II and XX) or else words and tunes could never co-operate in the production of a song.

To define emotions states in music as erotic, pathetic, heroic etc. after the manner of Sanskrit writers or to classify musical emotions into joy, sadness, longing, amusement etc. in modern psychological experiments (Cf. Edited by Max Shoen, The Effects of Music) is useful only to a limited extent.

There has been recently a physiological approach to emotion. The bodily changes in emotional states affecting temperature, breathing, heart-beat and endocrine glands have been under observation. Though some valuable results are available, much remains still speculative. For instance, adrenalin is secreted into the blood stream not only during fear or anger, but the same organic state has been found in football players before a game and in students just before an examination. Emotions like mirth, joy, curiosity are without known organic states. The same uncertainty prevails in the expressive movements composed of gestures, inflections of voice and facial expressions associated with an emotion (Cf. Woodworth. Psychology. Chaps. VII and XII) and as such there is little hope of distinguishing the transitions in musical emotion with the present technique.

We now come to the problem of relating specific tunes or rāgas to definite emotions. It has already been said that from the wording of songs it appears no tune enjoys a monopoly of particular emotions. Again in the same song with a particular emotional colouring by words, the singer expresses himself in various ways in his improvisations. He may be

awe-inspiring with his rapid slides, may be dallying to the point of effeminacy and may break into mournful wailing by turns. There is, however, occasionally an impression that the nature of a rāga like Hindol is rather masculine.

Is there an emotional background behind the allotment of definite periods and season to rāgas ? The vivid procession of time and seasons in a land lit by a bright sun under a tropic sky is well-marked. Though we cannot relate particular rāgas to definite emotions, we feel there may be some relation between the time and the tune. There is little inspiration for singing on a sultry noon in summer whereas the dawn and the sunset affect the mind in an indefinable way and there seems to be a preference for certain scales at these periods. We are vaguely conscious there is some relation but it cannot be definitely expressed. It cannot be denied, however, much of it is due to association and to the presence of words in songs describing particular periods.

The plants and animals respond to periodical changes of day and night, and of the march of seasons (Cf. Thomson. *Biology for Everyman*. p. 847) and it may be that man also is affected to some extent inspite of his artificial environment.

APPENDIX VII

Śārṅgadeva's Notes.

SCALES

Śrutis	Śuddha svaras	Vikṛta svaras
	niṣāda	(low octave)
1		kaiśika niṣāda do.
2		kākali niṣāda do.
3		chyuta ṣaḍja do.
4	ṣaḍja	achyuta ṣaḍja (medium octave)
5		
6		
7	ṛṣabha	vikṛta ṛṣabha
8		
9	gāndhāra	
10		sādhāraṇa gāndhāra
11		antara gāndhāra
12		chyuta madhyama
13	madhyama	achyuta madhyama
14		
15		
16		Tri-śruti pañchama, kaiśika pañchama

Śrutis	Śuddha svaras	Vikṛta svaras
17	pañchama	
18		
19		
20	dhaivata	vikṛta dhaivata
21		
22	niṣāda	

Chyuta ṣaḍja—in ṣaḍja sādihāraṇa ni takes the first śruti of sa and ri takes the final (fourth) śruti of sa. Naturally ṣaḍja takes its own third śruti and so becomes chyuta.

Achyuta ṣaḍja—as kākali ni takes the second śruti of sa, sa becomes an achyuta vikṛta in its own place.

Vikṛta ṛṣabha—in ṣaḍja-sādihāraṇa ri takes the final śruti of sa and getting four śrutis instead of three becomes vikṛta in its own place.

Chyuta madhyama—in madhyama-sādihāraṇa ga takes the first śruti of ma and pa takes the final śruti of ma. Madhyama takes the third śruti and becomes chyuta.

Achyuta madhyama and vikṛta dhaivata are to be interpreted in the same way as achyuta ṣadja and vikṛta ṛṣabha.

Tri-śruti pañchama—vikṛta owing to madhyama grāma.

Lochana's Notes.

Śrutis	Śuddha svaras	Vikṛta svaras
1	ṣadja	
2		
3		komala ṛṣabha
4	ṛṣabha	
5		
6	gāndhāra	
7		tivra gāndhāra
8		tivrataṛa gāndhāra
9		tivratama gāndhāra
10	madhyama	atitivrataṛa gāndhāra
11		
12		tivrataṛa madhyama
13		
14	pañchama	
15		
16		komala dhaivata

Śrutis	Śuddha svaras	Vikṛta svaras
17	dhaivata	
18		
19	niṣāda	
20		tivra niṣāda
21		tivrata niṣāda, kākali niṣāda
22		tivratama niṣāda
1	ṣaḍja	

Lochana uses the seven śuddha notes and komala ri, tivrata ga, tivrata ma, komala dha and tivrata or kākali ni among the vikṛta svaras. A sharp dha is however used in thāta Pūrva.

Ahobala's Notes.

Śrutis	Śuddha svaras	Vikṛta svaras
1	ṣaḍja	
2		pūrva ri
3		komala ri
4	ṛṣabha	pūrva gāndhāra
5		komala gāndhāra, tivra ṛṣabha (sādhāraṇa)
6	gāndhāra	tivrata ṛṣabha
7		tivra gāndhāra (sādhāraṇa)

Śrutis	Śuddha svaras	Vikṛta svaras
8		tivratarā gāndhāra (antara)
9		mṛdu madhyama, tivrata ma gāndhāra
10	madhyama	ati-tivrata ma gāndhāra
11		tivra madhyama
12		tivratarā madhyama
13		tivrata ma madhyama, mṛdu pañchama
14	pañchama	
15		pūrva dhaivata
16		komala dhaivata
17	dhaivata	pūrva niṣāda
18		komala niṣāda, tivra dhaivata (sādhāraṇa)
19	niṣāda	tivratarā dhaivata
20		tivra niṣāda (sādhāraṇa)
21		tivratarā niṣāda (kākalī)
22		tivrata ma niṣāda (kaisika)
1	ṣaḍja	

Ahobala uses the seven śuddha svaras and five vikṛta svaras namely komala ni, tivra ga, tivratarā ma, komala dha, tivra ni in the description of rāgas. In his case kākalī precedes kaisika.

Rāmāmātyya's Notes.

Śrutis	Śuddha svaras	Vikṛta svaras
	niṣāda	
1		kaiśika niṣāda, ṣaṭ-śruti dhai- vata
2		kākali niṣāda
3		chyuta ṣadja (chyuta-ṣadja- niṣāda)
4	ṣadja	
5		
6		
7	ṛṣabha	
8		
9	gāndhāra	pañcha-śruti ṛṣabha
10		sādhāraṇa gāndhāra, ṣaṭ-śruti ṛṣabha
11		antara gāndhāra
12		chyuta madhyama (chyuta- madhyama-gāndhāra)
13	madhyama	
14		
15		
16		chyuta pañchama (chyuta-pañ- chāma-madhyama)

Śrutis	Śuddha svaras	Vikṛta svaras
17	pañchama	
18		
19		
20	dhaivata	
21		
22	niṣāda	pañcha-śruti dhaivata

Pañcha-śruti ri and pañcha-śruti dha are the same as śuddha ga and śuddha ni. Antara ga and kākali ni are not represented on the viṇā and as such Rāmāmātya virtually uses twelve notes in the octave.

Somanātha's Notes.

Śrutis	Śuddha svaras	Vikṛta svaras
	niṣāda	
1		kaiśika niṣāda, ṣaṭ-śruti dhai- vata, tivratama dhaivata
2		kākali niṣāda
3		mṛdu ṣaḍja
4	ṣaḍja	
5		
6		
7	rṣabha	

Śrutis	Śuddha svaras	Vikṛta svaras
8		chatuḥ - śruti ṛṣabha, tivra ṛṣabha
9	gāndhāra	pañcha-śruti ṛṣabha, tivrata ṛṣabha
10		sādhāraṇa gāndhāra, ṣaṭ-śruti ṛṣabha, tivrata ṛṣabha
11		antara gāndhara
12		mṛdu madhyama
13	madhyama	ṣaṭ-śruti gāndhāra, tivrata gāndhāra
14		
15		ṣaṭ-śruti madhyama, tivrata madhyama
16		mṛdu pañchama
17	pañchama	
18		
19		
20	dhaivata	
21		chatuḥ-śruti dhaivata, tivra dhaivata
22	niṣāda	pañcha-śruti dhaivata, tivrata dhaivata

Somanātha uses the terms tivra, tivrata, tivra-

tama in a slightly different way from Lochana or Ahobala. A note becomes *tīvra* only when it has four *śrutis* and consequently *ga* and *ni* can become *tīvra* when they coincide with *antara ga* and *kākalī ni*. On the basis of this reasoning *tīvratama ga* coincides with *śuddha madhyama*.

Somanātha describes twelve notes in the octave on the *viṇā* but he occasionally uses additional notes in the description of the scales. *Rāmāmātya* is more thoughtful and accurate in this respect.

APPENDIX VIII

Illustration of a Rāga.

RAGA DES

Scale or Ṭhāṭa—sa re ga ma pa dha ni sā (may be named as the komala ni ṭhāṭa. In the same way the scale of rāga Kāphi may be called the komala ga ni ṭhāṭa, that of Bhairavi may be termed komala re ga dha ni ṭhāṭa and so on). Komala ga is occasionally used in addition to the regular notes.

Āroha—sa, ^{ma}re, ma pa, ni sā. Avaroha—sa ni dha pa, ma ga re ga sa. Re ga ma pa and re ma pa dha sā are also occasionally taken in the āroha and ma ga re ga sa in the avaroha.

Pakad—ma ga re ga sa, ^{ma}re, ^{ma}re, ma pa ni dha pa.

Forty or fifty years ago, rāga Des was heard usually in Ṭappā or Ṭhumri (Cf. GS. p. 81, and the songs in Des sung by Moijuddin, Johrābāi and Gaharjān preserved in gramophone records) but now the Kheyāl style predominates. The rāga is traceable in folk-songs and Kirtan (a class of religious

songs). The allied rāgas are Soraṭ (almost indistinguishable from Des), Jayjayanti and Tilak Kāmod. Komala ga has to be used in Des with care so as not to bring in the elements of Jayjayanti which, however has its own characteristic pakaḍ. The mukāms or amśas are sa re pa (re pa may be called the vādi and samvādi). The other notes dha, ni, ma, ga may also be treated as amśas. Ma and ga are the most difficult notes to be used as amśas as Mallār varieties, especially Gauḍ-mallār which may be included in the scale of Des, will tend to appear. Des and Soraṭ have the elements of Mallār in the mid or the continuous transition (slide) ma re (which is less pronounced in Sāraṅg) and in the kan or the suggestive note ma used with re and consequently will be hard to distinguish from Mallār if ma or ga is emphasized. Ga has the additional danger of bringing in Khamāj. The rāga is usually sung in the first part of the night but owing to the description of the rainy season frequently appearing in the songs may be treated as a seasonal rāga and as such singable at all times in the rainy season.

Ālāpa—(The time-value of notes is not fixed but final notes of phrases separated from each other by commas are comparatively long.)

With reference to sa, re, pa as anśas :—

1. ma ga re ga sa ni sa re, ma ga re, re ga re
 ma ga re, pa ma ga re, re ma pa ni dha
 pa, dha pa ma ga re, sa, ni sa re sa, re ni
 dha pa, dha pa ma ga re, re ga sa, re ma
 pa ni dha pa.
2. re ga sa, ni sa, ni sa re sa, ni ni, dha pa, ma
 pa ni dha pa, ma pa ni ni sa, re ga sa, ni
 dha pa, dha pa ma ga re ga sa, re ma pa
ni dha pa.
3. re ma pa, ni dha pa, sa, ma pa ni dha pa, re
 ga ma pa, dha ni dha pa, dha pa ma ga re
 ga sa, re ma pa ni dha pa.

The rāga does not normally and naturally tend to take dha and komala ni as anśas which, however, with a little esthetic insight may be treated as additional centres. The main idea behind the use of these notes as centres is to provide certain phrases which serve as contrast to the regular and usual phrases used in the rāga.

4. re ma pa dha, ni dha, sa ni dha, sa re sa ni
 dha, sa re ga sa, sa re ni, ni sa dha, pa

dha ni dha pa, pa dha pa ma, ga re ga sa,
re ma pa, ni dha pa.

5. ni sā, ni sā re sā ni, dha ni, pa dha ni, re mā
pa dha sā ni, ga re sā, re sā ni, ni ni dha
ni, pa dha ni, pa dha ni dha pa, dha pa
ma ga re ga sa, re ma pa ni dha pa.

Ma and ga will have to be used with great care if they are treated as amśas and it is not safe to take them in the ascent.

6. re ga, sa re ma pa, ni dha pa, dha pa ma,
ni, ma pa ni dha pa, dha ma, re ma pa
dha ma, sā ma ni dha pa dha ma, ga re
ga sa, re ma pa ni dha pa.

7. re ga, sa, re pa ma ga, re ga, sa, dha pa
dha ma ga, re ga sa, ga ma ni dha pa,
dha ma ga, re ga, sa, re ma pa ni dha pa.

The rāga may also be developed in a general way without emphasizing any note in particular. This is the general procedure in the body of the songs.

8. re ma pa, ni dha pa, dha pa ma ga re ga re
sa, ni sa re mā pa ni ni sā, ni sā ni re sā

ni dha pa, dha ma ga re ga sa, re re, ma
 pa dha sa.

(Detailed and analytical study of Des and other Hindustani rāgas with their history of evolution and relation to allied rāgas with illustrations will be taken up in “Folk-songs and Melody-types”.)

APPENDIX IX

REFERENCES FROM SANSKRIT TEXTS.

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स्वरस्य हेतुभूताया वीणायाश्चाक्षुषत्वतः ।
तत्र स्वरविबोधार्थं स्थानलक्षणमुच्यते ॥
ध्वन्यवच्छिन्नवीणायां मध्ये तारकसः स्थितः ।
उभयोः षड्जयोर्मध्ये मध्यमं स्वरमाचरेत् ॥
त्रिभागात्मकवीणायां पञ्चमः स्यात्तदग्रिमे ।
षड्जपञ्चमयोर्मध्ये गान्धारस्य स्थितिर्भवेत् ॥
सपयोः पूर्वभागे च स्थापनीयोऽथ रिस्वरः ।
सपयोर्मध्यदेशे तु धैवतं स्वरमाचरेत् ॥
तत्रांशद्वयसंत्यागान्निषादस्य स्थितिर्भवेत् ॥ (पारिजातः)

If we interpret 'madhyadese' as 'in the middle of' with respect to dhaivata we get an uncomfortably high dhaivata with 452·5 vibrations. Bhatkhande tries to make it 445·5 by taking the sense as 'somewhere in the middle region' and with the help of another statement of Ahobala stressing the relation of fifth in samvādi svaras i. e. by taking dha as the fifth of ri. But this is open to objections. Elsewhere in the verse 'madhya' has always been used in the sense of 'in the middle of' and Ahobala while em-

phasizing the relation of fifth between notes sa pa, ga ni and ma sa omits any reference to the notes ri and dha. I think the confusion is due to the fact that Ahobala finds the places of the śuddha and vikṛta notes by dividing the wire and portions of the wire into only two or three equal parts. It is difficult to believe that all the twelve notes adjusted themselves to these few fractions and did not need more complex fractional forms.

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अथ द्वौ ग्रामौ षड्जो मध्यमश्चेति । तत्राश्रिता द्वाविंशतिः श्रुतयः । यथा—

तिस्रो द्वे च चतस्रश्च चतस्रस्ति स एव च

द्वे चतस्रश्च षड्जाख्ये ग्रामे श्रुतिनिदर्शनम् ॥ (नाट्यशास्त्रम्)

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षड्जत्वेन गृहीतो यः षड्जग्रामे ध्वनिर्भवेत् ।

तत ऊर्ध्वं तृतीयः स्याद् ऋषभो नात्र संश्रयः (संशयः) ॥

ततो द्वितीयो गान्धारश्चतुर्थो मध्यमस्ततः ।

मध्यमात् पञ्चमस्ततः तृतीयो धैवतस्ततः ॥

निषादोऽतो द्वितीयः स्यात् ततः षड्जश्चतुर्थकः । (दत्तिलम्)

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तूर्यादृतीयादिः श्रुतिः पूर्वाभिकांक्षया ।

निर्धार्यतेऽतः श्रुतयः पूर्वा अप्यत्र हेतवः ॥ (रत्नाकरः)

इयं श्रुतिश्चतुर्थी इयं तृतीया इयं द्वितीया इति पूर्वा श्रुतीरपेक्ष्यायं व्यवहारः—सिंहभूपालः ।

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द्वे वीणे तुल्यप्रमाणतंत्र्युपवादनदंडमूर्छने षड्जग्रामाश्रिते कार्ये । तयोरेकतरस्यां मध्यमग्रामिकीं कृत्वा पञ्चमस्यापकर्षे श्रुतिं तामेव पञ्चमवशात् षड्जग्रामिकीं कुर्यात् । एवं श्रुतिरपकृष्टा भवति । पुनरपि तद्वदेवापकर्षाद् गांधारनिषादवन्तावितरस्यां धैवतर्षभौ प्रविशतो द्विश्रुत्यधिकत्वात् ।—(नाट्यशास्त्रम्)

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च्युतोऽच्युतो द्विधा षड्जो द्विश्रुतिर्विकृतो भवेत् ।
 साधारणे काकलीत्वे निषादस्य च दृश्यते ॥
 साधारणे श्रुतिं षाड्जीमृषभः संश्रितो यदा ।
 चतुःश्रुतित्वमायाति तदैको विकृतो भवेत् ॥
 साधारणे त्रिश्रुतिः स्याद्विज्ञातत्वे चतुःश्रुतिः ।
 गान्धार इति तद्भेदौ द्वौ निःशङ्केन कीर्तितौ ॥
 मध्यमः षड्जवद्भेदाऽन्तर साधारणाश्रयात् ।
 पञ्चमो मध्यमग्रामे त्रिश्रुतिः कैशिके पुनः ॥
 मध्यमस्य श्रुतिं प्राप्य चतुःश्रुतिरिति द्विधा ।
 धैवतो मध्यमग्रामे विकृतः स्याच्चतुःश्रुतिः ॥
 कैशिके काकलीत्वे च निषादस्त्रिचतुःश्रुतेः ।
 प्राप्नोति विकृतौ भेदौ द्वौ...॥ (रत्नाकरः)

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ERRATA

Page	Line	
10	9	read 'high and low' for 'low and high'
12	23	read 'sa' for 'as'
19	12	arrange the notes as in line 23 page 100
19	16	read 'as the first note' for 'on the first śruti'
20	22	add 'ga and ni are often desirable in melancholy songs' after 'emotions'
26	2	insert 'ragas of' between 'to' and 'other'
110	8	add 'situated at the 8th and 21st śrutis respectively' after 'kākalī ni'
117	14	add 'and anḍava' after 'rāgas'
127	6	read 'they' for 'the'
129	17	read 'emotional' for 'emotions'

